



The Ridgeway School & Sixth Form College

...Inspiring Learners For Their Future

*'Our shared vision is that our students, colleagues and families will be part of a **FAIR** community.'*

*We will support our school **Family** to **Achieve** their potential, and **Inspire** students to **Reach** the very best destinations.'*



# 3D & Product Design Curriculum Overview

RESPECT | HONESTY | ENDEAVOUR | CREATIVITY | COMMUNITY

## Year 7 Design & Technology Curriculum Overview – Subjects taught in rotation over 12 week modules

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	<b>Food</b> <b>Basic skills in preparation and cooking:</b> <ul style="list-style-type: none"> <li>- Weighing and measuring</li> <li>- Bridge and claw method</li> <li>- Rubbing in method</li> <li>- Safe use of the knife and oven</li> </ul> <b>The Eatwell Guide (nutrients and their sources)</b> <b>Sensory Analysis</b> <b>Recipe modification</b>	<b>Graphics</b> <ul style="list-style-type: none"> <li>• <b>Introduction</b> to colour theory and rendering</li> <li>• <b>Understanding</b> motions theory</li> <li>• <b>Developing skills</b> using craft knife and cutting mats safely to create pop up pages</li> <li>• <b>Understanding</b> how levers and linkages can change direction of movement</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Understanding</b> how 'modelling' can prove and test ideas</li> <li>• <b>Resources and materials</b> Card, cutting mat, craft knives, stationary, computers</li> <li>• <b>Health &amp; Safety</b> Safe use of craft knife and cutting mat via demonstration and student practice</li> <li>• <b>Imaginative project</b> to create and illustrate story via moving book</li> </ul>	<b>Product Design</b> <ul style="list-style-type: none"> <li>• <b>Introduction to tools and equipment</b> Basic hand tools, soldering iron</li> <li>• <b>Health &amp; Safety in the workshop</b> Soldering iron, electronics</li> <li>• <b>Design</b> Target market Hand designs converted onto 2D design</li> <li>• <b>CAD / CAM</b> 2D Design. Laser cutter</li> <li>• <b>Materials</b> Electronic components</li> <li>• <b>Construction</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Evaluation</b> Evaluate final product</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Resources and materials</b> Materials/fabrics, threads, cord</li> <li>• <b>Embellishment</b> Basic hand embroidery stitches with modifications</li> <li>• <b>Design</b> Presentation, use of colour, annotation</li> <li>• <b>Construction</b> Pocket, casing, plain seam</li> <li>• <b>Quality Checks</b> Accuracy: 0.5 cms embroidery stitch length, measurements for casing, seam allowance</li> </ul>
					<b>Textiles</b> <ul style="list-style-type: none"> <li>• <b>Introduction to tools and equipment</b> Small equipment, sewing machine, iron</li> <li>• <b>Health &amp; Safety</b> In the workshop, use of sewing machine &amp; iron</li> <li>• <b>Appreciation of designs from a chosen genre</b> Contemporary embroidery</li> </ul>	

## Year 8 Design & Technology Curriculum Overview – Subjects taught in rotation over 12 week modules

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 8	<p><b>Food</b>  <b>Development of skills in preparation and cooking:</b></p> <ul style="list-style-type: none"> <li>- Safe use of the oven</li> <li>- Accuracy and precision</li> <li>- Knife skills (dicing)</li> <li>- Variety of cooking methods</li> </ul> <p><b>Nutrient sources and functions</b>  <b>Analysing food packaging (for sugar content)</b>  <b>Recipe design and modification</b></p>	<p><b>Graphics</b></p> <ul style="list-style-type: none"> <li>• <b>Logo and trainer graphic designs</b></li> <li>• <b>Understanding target audiences and how to meet their needs including those with disabilities, cultural identities and ages</b></li> </ul> <p><b>Knowledge and understanding</b> trainer performance and the importance of ergonomics and anthropometrics incorporated within designs</p>	<p><b>Resources and materials</b>            Stationary, computers, fine liners and examples</p> <p><b>Brands and logos</b></p> <p>Brand pull, images and pricing (including designers)</p> <p><b>Introduction to digitally supported designing</b></p> <p>CAD/Word drawing tools, Paint</p>	<p><b>Product Design</b></p> <ul style="list-style-type: none"> <li>• <b>Introduction to tools and equipment</b>                Hand equipment                Marking tools                Belt sander                Disc sander</li> <li>• <b>Health &amp; Safety</b>                Recap and reinforce in the workshop</li> <li>• <b>Design</b>                Specifications                Hand design</li> <li>• <b>CAD / CAM</b>                2D Design to convert image into vectors</li> <li>• <b>Materials</b>                Ply wood</li> <li>• <b>Construction</b>                Finger joints                Lap joint</li> </ul>	<p><b>Evaluation</b>            Final product</p>	<ul style="list-style-type: none"> <li>• <b>Resources and materials</b>                Cotton calico fabric, threads, magic touch heat transfer paper</li> <li>• <b>Modelling &amp; embellishment</b>                Heat transfer of design, more complex hand embroidery stitches, machine embroidery.</li> <li>• <b>Design</b>                ‘In the style of’ Pop Art. Links to Andy Warhol and/or Roy Lichtenstein. Presentation and annotation</li> <li>• <b>Construction</b>                Neatened plain seam, facings</li> <li>• <b>Quality checks</b>                Links to Pop Art, accuracy and evenness of hand &amp; machine embroidery. 1.5 cms seam allowance, trimmed corners</li> </ul>
					<p><b>Textiles</b></p> <ul style="list-style-type: none"> <li>• <b>Revisit tools and equipment</b>                Small equipment, computerised use of sewing machine, iron, heat press</li> <li>• <b>Health &amp; Safety</b>                In the workshop, use of sewing machine, iron &amp; heat press</li> <li>• <b>Colour theory</b>                Colour wheel, primary, secondary, complimentary colours</li> <li>• <b>Research – appreciation of designs from a chosen genre</b>                Pop Art:- Artists and characteristics</li> </ul>	

## Year 9 Design & Technology Curriculum Overview – Subjects taught in rotation

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 9	<p><b>Food</b> Development of more complex skills in preparation, cooking and presentation:</p> <ul style="list-style-type: none"> <li>- Accuracy and precision</li> <li>- Garnishing</li> <li>- Variety of knife and cooking methods</li> <li>- Complex techniques</li> </ul> <p><b>Food provenance (grains and cereals)</b> <b>Diet analysis</b> <b>Sensory analysis</b> <b>Recipe design and modification</b></p>	<p><b>Graphics Introduction to Photoshop</b> Rendering previously in drawn designs digitally with colour Computer Aided Design</p> <p><b>Existing Playing cards</b> How playing cards have evolved historically</p> <p><b>Skills workshops linked to designers (Summer Term)</b> Technical drawing, illustration, printed Graphics</p>	<p><b>Resources</b> Computers with Photoshop, fine liners, Playing cards</p> <p>(Summer term) Water colours, pen and ink, craft knives, cutting mats</p> <p><b>Health &amp; Safety</b> Reinforce safe use of craft knives and cutting mats</p> <p><b>Research</b> History timeline of the 'playing card'</p>	<p><b>Product Design</b></p> <ul style="list-style-type: none"> <li>• Introduction to tools and equipment</li> <li>• Health &amp; Safety in the workshop</li> <li>• Design</li> <li>• CAD / CAM</li> <li>• Materials</li> <li>• Construction</li> </ul>	<ul style="list-style-type: none"> <li>• Quality checks</li> <li>• Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Resources and material Greater range of threads, printing techniques and range of fabrics</li> <li>• Modelling and embellishment Curved stitching, block embroidery, printing, paper pattern making</li> <li>• Design One-line drawings, modifying portraits &amp; photos, repeat patterns</li> <li>• Construction Embroidered stretched canvas portrait. Circular travel bag, with casing</li> <li>• Quality Control Accuracy of curved stitching and block embroidery. Repeat patterns, even casing.</li> </ul>
					<p><b>Textiles</b></p> <ul style="list-style-type: none"> <li>• Tools and equipment Independent use of equipment</li> <li>• Health and safety In the workshop, use of dyes and printing inks</li> <li>• Research-appreciation of designs from chosen genre Contemporary embroidery - <i>Maurizio Anzeri &amp; Victoria Villasana</i></li> </ul>	

## Year 10 3D Design Curriculum Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	<b>Unit 1 Introduction unit:</b> <ul style="list-style-type: none"> <li>Skills workshops AO3 – recording and observations</li> <li>Exploring Ideas – AO2 experimenting with materials and resources</li> <li>Health and Safety in the workshop</li> <li>Focus – Timbers</li> <li>Theme – Architecture and structures</li> </ul>	<b>Unit 1:</b> <ul style="list-style-type: none"> <li>Developing ideas AO1 –Designer research, copies and working ‘in the style of’.</li> <li>Developing ideas AO1 - through experimenting, modelling and prototypes</li> <li>Focus – Plastics and CAD/CAM</li> <li>Theme – Design movement inspired Lamps</li> </ul>	<b>Unit 1:</b> <ul style="list-style-type: none"> <li>Developing ideas AO1 – into a Final response.</li> <li>Final piece or pieces AO4</li> <li>Focus – Metal casting</li> <li>Theme – Jewellery/design for film and TV.</li> </ul>	<b>Component 1. Coursework Project.</b> <ul style="list-style-type: none"> <li>Recording and observations – AO3 linked to chosen theme</li> <li>Developing ideas AO1 –Designer research, copies and working ‘in the style of’.</li> </ul>	<b>Component 1. Coursework Project.</b> <ul style="list-style-type: none"> <li>Exploring Ideas – AO2 experimenting with materials and resources</li> <li>Refining ideas and evidencing the project journey.</li> </ul>	<b>Component 1. Coursework Project.</b> <ul style="list-style-type: none"> <li>Exploring Ideas – AO2 experimenting with materials and resources</li> <li>Developing ideas AO1 - through design, experimentation and modelling.</li> </ul>

## Year 11 3D Design Curriculum Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 11	<p><b>Component 1. Coursework Project.</b></p> <ul style="list-style-type: none"> <li>Developing ideas AO1 - through design, experimentation and modelling.</li> </ul>	<p><b>Component 1. Coursework Project.</b></p> <ul style="list-style-type: none"> <li>Developing ideas AO1 – into a Final response.</li> </ul> <p>Final piece or pieces AO4</p>	<p><b>Component 2. Exam Unit.</b></p> <p>Exam paper with contexts issued by exam board.</p> <ul style="list-style-type: none"> <li>Recording and observations – AO3 linked to chosen question</li> </ul> <p>Developing ideas AO1 – Designer research, copies and working ‘in the style of’</p>	<p><b>Component 2. Exam Unit.</b></p> <ul style="list-style-type: none"> <li>Exploring Ideas – AO2 experimenting with materials and resources</li> <li>Developing ideas AO1 - through design, experimenting and modelling</li> </ul>	<p><b>Component 2. Exam Unit.</b></p> <p>Final piece or pieces AO4 – 10-hour exam. Dates chosen internally</p>	<p><b>Revision</b></p>

## Sixth Form Product Design Curriculum Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Year 12</b>	<p><b>Technical principles</b></p> <p>1.1 – Materials and their applications.</p> <p>1.2 Performance characteristics of materials</p> <p><b>Design and making principles</b></p> <p>2.1 Design methods and processes.</p> <p>2.2 Design theory.</p>	<p><b>Technical principles</b></p> <p>1.3 Enhancement of materials</p> <p>1.4 Forming, redistribution and addition processes.</p> <p>1.5 The use of finishes.</p> <p><b>Design and making principles</b></p> <p>2.3 Technology and cultural changes</p> <p>2.4 Design processes</p> <p>2.5 Critical analysis and evaluation</p>	<p><b>Technical principles</b></p> <p>1.6 Modern and industrial scales of practice.</p> <p>1.7 Digital design and manufacture.</p> <p><b>Design and making principles</b></p> <p>2.6 Selecting appropriate tools, equipment and processes</p>	<p><b>Technical principles</b></p> <p>1.8 The requirements for product design and development.</p> <p>1.9 Health &amp; safety</p> <p><b>Design and making principles</b></p> <p>2.7 Accuracy in design manufacture</p> <p><b>NEA – Identifying and investigating design possibilities</b></p> <p>Students will begin to investigate and develop a design context with enough scope to meet the AO's.</p>	<p><b>Technical principles</b></p> <p>1.10 Protecting designs and intellectual property.</p> <p>1.11 Design for manufacturing, maintenance, repair and disposal</p> <p>1.12 Feasibility studies</p> <p><b>Design and making principles</b></p> <p>2.8 Responsible design</p> <p><b>NEA - AO1 Section A – Identifying and investigating design possibilities</b></p> <ul style="list-style-type: none"> <li>Rationale for chosen context clearly identified.</li> </ul>	<p>1.13 Enterprise and marketing in the development of products.</p> <p>1.14 Design communication.</p> <p><b>Design and making principles</b></p> <p>2.9 Design for manufacture and project management</p> <p>2.10 National and international standards in product design</p> <p><b>NEA - AO1 Section A – Identifying and investigating design possibilities</b></p> <ul style="list-style-type: none"> <li>Rationale for chosen context clearly identified.</li> </ul>
<b>Year 13</b>	<p><b>Term 1</b></p> <p><b>AO1 Section B – Producing a design brief and specification</b></p> <p>Produce a clear and challenging design brief and fully detailed design specification reflecting thorough consideration of investigations undertaken.</p>	<p><b>Term 2</b></p> <p><b>AO2 Section C – Development of design proposal(s)</b></p> <p>Generate design proposals that take full account of the design brief and specification.</p> <p>Modelling is a key element of this assessment criterion.</p> <p>Produce a comprehensive and fully detailed manufacturing specification.</p>	<p><b>Term 3</b></p> <p><b>AO2 Section D – Development of design prototype(s)</b></p> <p>Manufacturing a prototype using all potential resources, tools machines and equipment to a high level.</p> <p>On-going development and directly related to the design proposals.</p> <p>On-going testing and evaluation</p>	<p><b>Term 4</b></p> <p><b>AO3 Section E – Analysing and evaluating</b></p> <p>On-going analysis and evaluation that informs the manufacture of the prototype. Testing and fitness for the needs of the client/user. Critical analysis of the final prototype.</p> <p>Modifications and improvements including consideration of levels of production.</p>	<p><b>Term 5</b></p> <p><b>Exam preparation</b></p>	<p><b>Term 6</b></p> <p>Students have completed the course.</p>