


**Design & Technology Department – Year 9**

 <b>Shirley High Curriculum Map</b>	<i>To use a Balloon project to develop accurate design drawing skills, group work skills and accurate marking out skills working to scale.                      To use the Jewellery short project to develop an understanding of the design process and fine practical skills in cutting, joining, forming and finishing metals, plastics &amp; timber.                      To use a textiles project to look at natural and synthetic textiles, their production and joining methods</i>					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:
	Hot Air Balloon Project	Jewellery Project	Hot Air Balloon Project	Jewellery Project	Hot Air Balloon Project	Jewellery Project
<b>Why Now?</b>	To provide learners an opportunity to build on skills learnt at Years 7 & 8 about health and safety in the workshop. To enable students to build on their drawing skill with technical drawing and learning about the properties of paper by creating a hot air balloon.	Pupils will have an opportunity to build on their materials knowledge. To enable pupils to learn about material properties through designing and making a piece of jewellery on their own design and materials of their choice.	To provide learners an opportunity to build on skills learnt at Years 7 & 8 about health and safety in the workshop. To enable students to build on their drawing skill with technical drawing and learning about the properties of paper by creating a hot air balloon.	Pupils will have an opportunity to build on their materials knowledge. To enable pupils to learn about material properties through designing and making a piece of jewellery on their own design and materials of their choice.	To provide learners an opportunity to build on skills learnt at Years 7 & 8 about health and safety in the workshop. To enable students to build on their drawing skill with technical drawing and learning about the properties of paper by creating a hot air balloon.	Pupils will have an opportunity to build on their materials knowledge. To enable pupils to learn about material properties through designing and making a piece of jewellery on their own design and materials of their choice.
<b>Fundamental Concepts</b>	Safe working Practices Accurate manual technical drawing. Marking to scale. To collaborate working together in teams Evaluating	Design Brief, Design Specification, Analysing, Researching Designing Forming, shaping, joining, and finishing metals, plastic & timber, Evaluating	Safe working Practices Accurate manual technical drawing. Marking to scale. To collaborate working together in teams Evaluating	Design Brief, Design Specification, Analysing, Researching Designing Forming, shaping, joining, and finishing metals, plastic & timber, Evaluating	Safe working Practices Accurate manual technical drawing. Marking to scale. To collaborate working together in teams Evaluating	Design Brief, Design Specification, Analysing, Researching Designing Forming, shaping, joining, and finishing metals, plastic & timber, Evaluating
<b>Students will...</b>	<p><b>Safe Use of Tools and Equipment</b> including risk Assessment</p> <p><b>Use of drawing boards and equipment</b> for accurate manual technical drawing. Reinforce safe working practice with collection /return of drawing boards.</p> <p><b>Accurate Design Drawing.</b> Creating design ideas and developing a Final Design as an accurate scale drawing. Calculating and scaling up to actual size (Maths).</p> <p><b>Making and Testing (Group work)</b> Accurate marking out to scale on tissue.</p> <p>Creating templates of designs and marking out work using the least amount of tissue paper.</p> <p>Safe use of scissors, safety ruler and cutting mat to accurately cut out 'balloon gores and balloon embellishments.</p> <p>Teams must ensure their balloon is airtight, by checking for holes.</p> <p>Types of adhesives and their safe use.</p> <p>Testing and evaluation.</p>	<p><b>The Design Process</b></p> <p><b>Given a Design Brief – Writing a design Specification</b></p> <p><b>Generate and develop Design</b> to meet the Specification requirements</p> <p><b>Recognise common materials</b> Copper, Aluminium, Brass, Pine, plywood, acrylic. Understand their properties (Hardness, Toughness, Strength, Malleability, Sources of materials, their extraction, processing, sustainability, and environmental impact</p> <p>Manufacturing processes (including casting, forming, cutting, machining, joining, and finishing</p> <p><b>Practical Hand Skills</b> Practice cutting, shaping, joining, and finishing metals.</p> <p>Evaluating work against Specification requirements</p>	<p><b>Safe Use of Tools and Equipment</b> including risk Assessment</p> <p><b>Use of drawing boards and equipment</b> for accurate manual technical drawing. Reinforce safe working practice with collection /return of drawing boards.</p> <p><b>Accurate Design Drawing.</b> Creating design ideas and developing a Final Design as an accurate scale drawing. Calculating and scaling up to actual size (Maths).</p> <p><b>Making and Testing (Group work)</b> Accurate marking out to scale on tissue.</p> <p>Creating templates of designs and marking out work using the least amount of tissue paper.</p> <p>Safe use of scissors, safety ruler and cutting mat to accurately cut out 'balloon gores and balloon embellishments.</p> <p>Teams must ensure their balloon is airtight, by checking for holes.</p> <p>Types of adhesives and their safe use.</p> <p>Testing and evaluation.</p>	<p><b>The Design Process</b></p> <p><b>Given a Design Brief – Writing a design Specification</b></p> <p><b>Generate and develop Design</b> to meet the Specification requirements</p> <p><b>Recognise common materials</b> Copper, Aluminium, Brass, Pine, plywood, acrylic. Understand their properties (Hardness, Toughness, Strength, Malleability, Sources of materials, their extraction, processing, sustainability, and environmental impact</p> <p>Manufacturing processes (including casting, forming, cutting, machining, joining, and finishing</p> <p><b>Practical Hand Skills</b> Practice cutting, shaping, joining, and finishing metals.</p> <p>Evaluating work against Specification requirements</p>	<p><b>Safe Use of Tools and Equipment</b> including risk Assessment</p> <p><b>Use of drawing boards and equipment</b> for accurate manual technical drawing. Reinforce safe working practice with collection /return of drawing boards.</p> <p><b>Accurate Design Drawing.</b> Creating design ideas and developing a Final Design as an accurate scale drawing. Calculating and scaling up to actual size (Maths).</p> <p><b>Making and Testing (Group work)</b> Accurate marking out to scale on tissue.</p> <p>Creating templates of designs and marking out work using the least amount of tissue paper.</p> <p>Safe use of scissors, safety ruler and cutting mat to accurately cut out 'balloon gores and balloon embellishments.</p> <p>Teams must ensure their balloon is airtight, by checking for holes.</p> <p>Types of adhesives and their safe use.</p> <p>Testing and evaluation.</p>	<p><b>The Design Process</b></p> <p><b>Given a Design Brief – Writing a design Specification</b></p> <p><b>Generate and develop Design</b> to meet the Specification requirements</p> <p><b>Recognise common materials</b> Copper, Aluminium, Brass, Pine, plywood, acrylic. Understand their properties (Hardness, Toughness, Strength, Malleability, Sources of materials, their extraction, processing, sustainability, and environmental impact</p> <p>Manufacturing processes (including casting, forming, cutting, machining, joining, and finishing</p> <p><b>Practical Hand Skills</b> Practice cutting, shaping, joining, and finishing metals.</p> <p>Evaluating work against Specification requirements</p>
<b>Language for Life (Key terms/Vocabulary)</b>	T Square/Parallel Motion Bar, Set Square, Scale ruler, template, scale, balloon gore, Net, pattern, template, embellishments, airtight, material properties, fragile, delicate,	Hardness, Toughness, Strength, Malleability, casting, forming, cutting, machining, joining, and finishing.	T Square/Parallel Motion Bar, Set Square, Scale ruler, template, scale, balloon gore, Net, pattern, template, embellishments, airtight, material properties, fragile, delicate,	Hardness, Toughness, Strength, Malleability, casting, forming, cutting, machining, joining, and finishing.	T Square/Parallel Motion Bar, Set Square, Scale ruler, template, scale, balloon gore, Net, pattern, template, embellishments, airtight, material properties, fragile, delicate,	Hardness, Toughness, Strength, Malleability, casting, forming, cutting, machining, joining, and finishing.
<b>Extended writing Opportunities</b>	Risk assessment & project Evaluation	Metals and metal processes.	Risk assessment & project Evaluation	Metals and metal processes.	Risk assessment & project Evaluation	Metals and metal processes.
<b>Maths Across the Curriculum</b>	Geometry, Circle circumference and area calculations, measurement, Scale	Marking out geometry to minimise waste.	Geometry, Circle circumference and area calculations, measurement, Scale	Marking out geometry to minimise waste.	Geometry, Circle circumference and area calculations, measurement, Scale	Marking out geometry to minimise waste.
<b>Links to careers/aspirations</b>	Engineering, Architecture, Textiles, Design, Product Designer, Paper Artist	Engineering, Jeweller, Artisan, Model Maker, Product Designer, Mechanical Engineering	Engineering, Architecture, Textiles, Design, Product Designer, Paper Artist	Engineering, Jeweller, Artisan, Model Maker, Product Designer, Mechanical Engineering	Engineering, Architecture, Textiles, Design, Product Designer, Paper Artist	Engineering, Jeweller, Artisan, Model Maker, Product Designer, Mechanical Engineering
<b>Cultural Capital</b>	Students build teamwork skills without which the project is impossible.	Students will recognise metals in everyday use and have confidence to work with them for their own projects at home	Students build teamwork skills without which the project is impossible.	Students will recognise metals in everyday use and have confidence to work with them for their own projects at home	Students build teamwork skills without which the project is impossible.	Students will recognise metals in everyday use and have confidence to work with them for their own projects at home
<b>Practical Application of Skills</b>	Drawing to scale, Scaling, and marking onto net, cutting, glueing, and testing, collaborating with others	Marking out, cutting, forming, joining, and finishing.	Drawing to scale, Scaling, and marking onto net, cutting, glueing, and testing, collaborating with others	Marking out, cutting, forming, joining, and finishing.	Drawing to scale, Scaling, and marking onto net, cutting, glueing, and testing, collaborating with others	Marking out, cutting, forming, joining, and finishing.