

## KS3 Design and Technology Curriculum

### Curriculum Intent

Our Design and Technology curriculum is centred around the building of knowledge, confidence and skills, which prepares them for the outside world. Design and Technology allows opportunities for students to engage positively with the designed and made world around them. Within our curriculum they will learn how products and systems are designed and manufactured, how to initiate and develop innovative ideas that can be presented through both traditional and digital graphic communication. We pride ourselves on providing hands on opportunities to learn skills and knowledge in a whole range of subject areas which include; graphic communication, textiles, woodwork, metal work and mechanical systems. Our students will grow in confidence through our dedicated teaching and manufacturing environments and our current and specialist teaching.

### Curriculum Implementation

Year	When	Lead	Topic	Summary	Skills and Knowledge	Assessment for learning	Big Questions	Key Words
<b>Year 7</b>								
7	Autumn 1	ZFR	Textiles	An introductory project into what is textiles and what are the basic sewing skills needed to create products within it. Their assessment piece will be a small cross stitch they have designed and sewn by hand. It will cover the basic health and safety skills connected to hand sewing.	<ul style="list-style-type: none"> <li>• Meaning of textiles.</li> <li>• Careers involving textiles.</li> <li>• Equipment and techniques.</li> <li>• Health and safety.</li> <li>• Running stitch and properties.</li> <li>• Back stitch and properties.</li> <li>• Threaded stitch and properties.</li> <li>• Cross stitch and properties.</li> <li>• Product evaluation.</li> </ul>	-Cold calling questioning. -Live feedback. -Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.	-What is textiles? -What are the basic stitches and their properties? -What are the health and safety factors linked to textiles? -Why do we use aida when cross stitching? -What is an assessment criteria and how do we use it to develop our work?	Products Materials Textiles Properties Fasteners Embroidery Aida Pixel Criteria
7	Autumn 2	ZFR	Graphic Communication	An introductory project into what is graphic	<ul style="list-style-type: none"> <li>• What is design and technology and what is covered within KS3.</li> </ul>	-Cold calling questioning. -Live feedback.	-What is design and Technology?	Accuracy Measurement Replicate

				<p>communication, how is it used and what are the basic skills needed to create quality designs. The focus of this will be to build effective skills in accuracy and measurement that can then be used to transfer to all future projects.</p>	<ul style="list-style-type: none"> <li>• Meaning of graphic communication.</li> <li>• Careers involving graphic communication.</li> <li>• Basic equipment and their uses.</li> <li>• Health and Safety within the workspace.</li> <li>• Measurements and accuracy using mms.</li> <li>• Page layouts.</li> <li>• Maths and Design</li> <li>• Quality of colour</li> </ul>	<p>-Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.</p>	<p>-What is graphic communication? -What are the basic equipment for graphic communication? -What is an assessment criteria and how do we use it to develop our work? -How do we accurately draw straight lines? -What is a page layout and why is it used? -How is maths used within design and technology?</p>	<p>Layout Professionalism <b>Autonomous</b></p>
7	Spring 1	ZFR	Long Boat Project	<p>This project will introduce the students to the design cycle and how they can use this to create a final product. They will be given a brief, have to collect primary and secondary research, develop design ideas, make a prototype and a</p>	<ul style="list-style-type: none"> <li>• Design cycle and its use within a design project. Using a brief, research, design and making.</li> <li>• Exploring modern and contemporary designers and using them to inspire our work.</li> <li>• Understanding the role of a prototype within industry.</li> <li>• Health and safety rules within the workshop.</li> </ul>	<p>-Cold calling questioning. -Live feedback. -Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.</p>	<p>-What is a design cycle and how is it used to structure a project? -How is a prototype used within the design process and why is it important within industry? -What is a polymer?</p>	<p>Design Cycle Brief Primary Research Secondary Research <b>Prototype</b> Polymers Timber Inspiration Copyright Graphic communication <b>Polymer</b></p>
7	Spring 2	ZFR						

				<p>final piece. Exploring both polymers and timber as materials. They will be introduced to the workshops health and safety policy and gain first hand experience and develop skills in a range of different hand tools.</p>	<ul style="list-style-type: none"> <li>• The importance of guides and technical drawing when creating a prototype.</li> <li>• Foundation theory knowledge of polymers.</li> <li>• The safe use and skills with a coping saw, sandpaper, Thompson file and the vice.</li> <li>• How is research effectively completed and used within the development of our work and the creation of a final design.</li> <li>• Transferring their graphic communication to their practical prototype using drawing and painting skills.</li> <li>• Foundation theory knowledge of timbers and simple joints.</li> <li>• The safe use and skills using a hand saw, a pillar drill and a chisel.</li> </ul>		<p>-Why is health and safety important and what are the rules within the workshop? -What is design development and how is this linked to research? -How does graphic communication support the making of a prototype? -What is a timber? -What is the purpose of wooden joints and how are they used?</p>	<p>Functional Contemporary Contrasting Monochromatic Timber Acrylic Chisel Joint</p>
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7	Summer 1	ZFR	Metal Dog Tag Project	<p>This project will introduce the students to the use of metal as their primary material. They will follow a design cycle and create a metal dog tag / pendant for a particular client base focusing on their requirements.</p>	<ul style="list-style-type: none"> <li>• Foundation knowledge of types of metals. Including the difference between ferrous, non-ferrous and alloys.</li> <li>• The metal lifecycle from metal ore to the death of a product.</li> <li>• A brief history of the product and how its changed and developed through the ages.</li> <li>• Design development and evaluation.</li> <li>• Health and safety rules within the workshop.</li> <li>• Health and safety rules for handling metal.</li> <li>• The safe use and skill for the use of a hack saw, junior hack saw, metal files and the metalwork vice.</li> <li>• Cleaning up and finishing metalwork product.</li> <li>• Quality control and its importance within industry.</li> </ul>	<p>-Cold calling questioning.          -Live feedback.          -Peer assessment.          -Self Assessment.          -Homework.          -Final skills assessment.          -Project quiz.</p>	<p>-Where do metals come from and what are the different types?          -What are the different properties and uses for the different types of metals?          -What is a product life cycle? and What is metal's life cycle?          -What is the history connected to dog tags?          -What are the health and safety concerns when handling metalwork?          -What tools and equipment are needed when working in metal and how are they used safely?          -How can we ensure that our work is finished to a high quality and why is it important in industry?</p>	<p>Design Cycle          Client Requirements          Ferrous          Non-Ferrous          Magnetic          Rust          Ore          Alloy          Spartan          Engraved          Identification          Vulcanised          Polish</p>
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7	Summer 2	ZFR						

Year 8

8	Autumn 1	ZFR	Textiles	<p>This project expands on the student's previous knowledge and skills in textiles. Using hand stitching and pattern making to create a fabric pencil case. The students will further develop their knowledge in textiles by exploring the difference between natural and synthetic fibres and the use of fastenings.</p>	<ul style="list-style-type: none"> <li>• Natural vs synthetic</li> <li>• Fibre to fabric journey</li> <li>• Textile products and properties</li> <li>• Types of fastenings and uses</li> <li>• Textile Patterns</li> <li>• Design Cycle</li> <li>• Health and safety related to needles, pins and fabric scissors</li> <li>• Back stitching using a pattern.</li> <li>• Quality Control</li> </ul>	<p>-Cold calling questioning. -Live feedback. -Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.</p>	<p>-What is the difference between natural and synthetic fibres? -What is a textile pattern and how is it used to create a product? -What are the health and safety factors linked to textiles? -How can the quality of sewing effect a products lifespan? -What is quality control and how can it be used in industry and your own work?</p>	<p>Fasteners Natural Fibres Synthetic Harvested Breathable Versatile Hardwearing Absorbency Properties Better Fit Pattern Design Cycle Brief Lifespan Quality-Control Industry</p>
8	Autumn 2	ZFR	Graphic Communication	<p>This project is focused about expanding the students understanding and skill base in 3D technical drawing. They will be taught the basic 3-dimensional shapes and how to draw complex designs in</p>	<ul style="list-style-type: none"> <li>• 3D vs 2D</li> <li>• Basic 3D shapes</li> <li>• Oblique drawing properties</li> <li>• Isometric drawing properties</li> <li>• Isometric paper</li> <li>• Basic cubes, towers and lines in isometric</li> <li>• Design development</li> </ul>	<p>-Cold calling questioning. -Live feedback. -Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.</p>	<p>-What is 3D drawing and why is it used within design and technology? -What is isometric drawing and how does it differ from oblique? -How can we use basic isometric shapes to build</p>	<p>2 dimensional 3 dimensional Perspective Isometric Oblique Architect Measurement Accuracy Development Industry</p>

				isometric. Finishing off with an isometric robot assessment.			more complex designs? -What is an evaluation and why is it important in industry and our own work?	
8	Spring 1	ZFR	Wooden Mechanics Project	This project will introduce the students to some simple mechanical techniques such as pullies, levers and cams. They will use this knowledge to design and make a moving scene using the different mechanical techniques. The material in focus will be timber.		-Cold calling questioning. -Live feedback. -Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.		Mechanical Techniques Pullies Levers CAMS Timber Construction
8	Spring 2	ZFR						
8	Summer 1	ZFR	Acrylic Clock Project	This project will introduce the students to polymers and their properties. In this project the students will go through the design cycle and make an acrylic clock inspired by a previous designer.		-Cold calling questioning. -Live feedback. -Peer assessment. -Self Assessment. -Homework. -Final skills assessment. -Project quiz.		Polymer Properties Design Cycle Acrylic Inspired Designer
8	Summer 2	ZFR						
<b>Year 9</b>								

9	Autumn 1	ZFR	Textiles	This project will allow the students to consolidate their previous knowledge in sewing and patterns while exploring fabric manipulation and dyes.				
9	Autumn 2	ZFR	Graphic Communication	This project will push the students understanding of 3 dimensional drawing while exploring different types of perspective drawing.	<ul style="list-style-type: none"> <li>• Basic oblique 3D shapes</li> <li>• Perspective</li> <li>• One-point perspective</li> <li>• Two-point perspective</li> <li>• Orthographic drawing</li> <li>• Exploded view drawing</li> </ul>	<ul style="list-style-type: none"> <li>-Cold calling questioning.</li> <li>-Live feedback.</li> <li>-Peer assessment.</li> <li>-Self Assessment.</li> <li>-Homework.</li> <li>-Final skills assessment.</li> <li>-Project quiz.</li> </ul>	<ul style="list-style-type: none"> <li>3 dimensional Perspective</li> <li>Oblique</li> <li>Horizon line</li> <li>Vanishing point</li> <li>Orthographic</li> <li>Accuracy</li> <li>Measurements</li> <li>Guidelines</li> <li>Orthographic</li> <li>Exploded view</li> </ul>	
9	Spring 1	ZFR	Architectural Diorama Project					
9	Spring 2	ZFR						
9	Summer 1	ZFR	Metal Toy Project					
9	Summer 2	ZFR						