



## CHS Curriculum Intent

**SUCCESSFUL:** Learners who gain deep and powerful knowledge in preparation for life; combining academic rigour, curiosity and creative flair.

**CREATIVE:** Learners who are imaginative, optimistic and inventive; finding their voice to become effective communicators prepared for lifelong adaptability

**HAPPY:** Learners who are confident, resilient, well-rounded citizens; they understand the world's communities and are ready to discover their place in it.

## CHS Curriculum Area Framework for Learning – Design Technology – Year 9

<b>SUBJECT</b>	<b>Design Technology</b>
<b>INTENT</b>	<p style="text-align: center;">“There are three responses to a piece of design – yes, no, and WOW! Wow is the one to aim for.” – Milton Glaser</p> <p>By studying Design and Technology we want students to be secure in the core skills of teamwork, communication, co-operation, and empathy by immersing them into the world of tomorrow and inspiring them to solve real world problems using practical solutions. We aim to inspire our students to become reflective and creative individuals who have the confidence to explore and question the world around them.</p> <p>Everything we use in life has been designed by someone, by people who are risk takers, experimenters, who are not afraid to make mistakes and learn from them. Therefore, through the in-depth knowledge of materials, products and innovations, students learn to interact positively with the ever-changing world around them and how this can have potential implications on societies, cultures, environment, and new innovations.</p> <p>Our aim is to develop curious, confident young people who are introduced to a vibrant range of activities and cultural experiences covering a broad-spectrum of design disciplines. We encourage creativity supporting students to go beyond the classroom creating responsible consumers, and successful innovative designers and engineers of tomorrow.</p> <p>We aim to develop happy, creative and successful learners that can change the ever-developing Design and Technology landscapes, such as product design, engineering, fashion design and Sustainable futures, preparing them for A-Level, level 3 BTECs or apprenticeships.</p>

**Department:** Computing & Technology 2021 - 2022

**Subject:** AQA Design Technology (8552)

<b>Year Group</b>	Year 9
<b>Rationale/ Narrative</b>	Year 9 is designed to ensure that students have a welcomed introduction to the Design and Technology course and spend their time in year 9 looking at a foundation of knowledge and understanding for key material areas and designing principles. This involves developing basic design communication, design and critical thinking as well as design analysis skills. This year shall also broaden and deepen their knowledge of the six main material areas



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that students will work with to build up a bank of practical skills through the use of these materials looking at; Woods and Timbers, Polymers (plastics), Paper, Card and Board, Metals and Alloys, Textiles and Fabrics.

Students will build upon their knowledge and understanding of key material areas from Key Stage 3 and expand on this further at a deeper level, grasping their awareness of material sources and origins, conversion and typical uses for products. This will also include some initial understanding of how materials are used in different manufacturing areas, which will be further explored in Year 10.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>KNOWLEDGE</b>	<p><b>Students will focus on Textiles:</b></p> <ul style="list-style-type: none"> <li>• Introduction to Design and Technology</li> <li>• Material working and physical properties vocabulary explained</li> <li>• Primary sources of materials for producing textiles</li> <li>• Recognize and categorize different types of textiles</li> <li>• understand how physical and working properties effect a range of textiles performance and aesthetics.</li> <li>• Understand the processes involved in obtaining raw material from animal, chemical and vegetable sources.</li> <li>• Be aware of sustainability issues in textile production</li> <li>• School and commercial based cutting, forming and processing techniques</li> <li>• Understand what aids are used to judge quality and accuracy</li> </ul>	<p><b>Students will focus on Polymers:</b></p> <ul style="list-style-type: none"> <li>• Know the primary sources of materials for producing polymers</li> <li>• Recognise and characterise different types of polymers</li> <li>• Understand the physical and working properties for a range of thermosetting and thermoforming polymers</li> <li>• Understand how plastics can be modified to enhance their properties</li> <li>• Be aware of the refining, fractional distillation and cracking to produce workable forms of polymers.</li> <li>• The names of tools and equipment used particularly when working with polymers</li> <li>• Be aware of commercial processing techniques for plastics</li> </ul>	<p><b>Students will focus on Metals and alloys:</b></p> <ul style="list-style-type: none"> <li>• Know the primary sources of materials for producing metals and alloys</li> <li>• Recognize characterize different types of metals and alloys</li> <li>• Understand physical and working properties of a range of metals and alloys</li> <li>• Know how metals are mined and extracted from raw material</li> <li>• Beware of sustainability and ethical issues in metal production in use and end of life</li> <li>• Understand how surfaces treatments and finishes affect functional and aesthetic properties</li> <li>• The names of tools and equipment used particularly when working with metals and alloys</li> <li>• Quality control measure used in industry.</li> </ul>	<p><b>Students will focus on Natural and manufactured boards:</b></p> <ul style="list-style-type: none"> <li>• Know the primary sources of materials for producing natural and manufactured timbers</li> <li>• Recognise and characterise different types of natural and manufactured timbers</li> <li>• Physical and working properties of a range of natural and manufactured timbers effect their performance</li> <li>• The ecological and social footprint deforestation/farming, use of bamboo.</li> <li>• Processing timber to produce workable forms of timber</li> <li>• Conversation &amp; seasoning</li> <li>• The creation of manufactured timbers</li> <li>• The advantages and disadvantages of manufactured board compared with natural timber</li> <li>• Stock forms, types and sizes of timber</li> </ul>	<p><b>Students will focus on Paper and boards:</b></p> <ul style="list-style-type: none"> <li>• Know the primary sources of materials for producing paper and boards</li> <li>• Recognize and characterize different types of paper and boards</li> <li>• How physical and working properties of a range of paper and board products effect their performance</li> <li>• Learn how the primary sources of materials for producing paper and boards are converted into products</li> <li>• Ecological issues in the manufacture and recycling of paper and board products</li> <li>• Different properties of paper and board and how this makes them suitable for use in commercial products</li> <li>• How to cut crease score fold and perforate card</li> <li>• Understand how the properties of different papers and boards effects there use in</li> </ul>	<p><b>Students will focus on core designing principles:</b></p> <ul style="list-style-type: none"> <li>• Design strategies to help produce imaginative and creative design ideas</li> <li>• Explore and develop design ideas</li> <li>• Develop, communicate, record and justify design ideas</li> <li>• Be aware of a range of techniques to support clear communication of design ideas</li> <li>• Design and develop prototypes in response to client wants/needs</li> <li>• Critically evaluate designing ideas, prototypes and suggest modifications</li> <li>• Understand the use of tolerances to ensure accuracy and why they are applied</li> <li>• Design planning can minimize waste</li> <li>• Design adaptation and use of tessellation</li> <li>• Mathematically and CAD modelling</li> </ul>



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	<p>before and during processing.</p> <ul style="list-style-type: none"> <li>Understand surface treatments and finishes and how they affect functional and aesthetics properties.</li> <li>The names of tools and equipment used particularly when working with textiles.</li> <li>- Their ecological and social footprint. (Fairtrade/ Organic / Dyes)</li> </ul>	<ul style="list-style-type: none"> <li>Understanding of the application and preparation for surface treatments and finishes and how the affects functionality and aesthetics</li> <li>The ecological and social footprint (drilling)</li> <li>Be aware of the role that consumers play in reducing waste and the demand of finite resources</li> <li>- Understand the hierarchy of options in responsible and sustainable design</li> </ul>	<ul style="list-style-type: none"> <li>Commercial processing of metals and alloys</li> </ul>	<p>materials and components (calculation of quantities)</p> <ul style="list-style-type: none"> <li>Commercial selection and processing of timber</li> <li>Preparation and application of treatments and finishes to enhance functional and aesthetic qualities.</li> <li>The names of tools and equipment used particularly when working with woods and timbers.</li> <li>Types of wood joints.</li> <li>Quality control in commercial timber manufacturing.</li> </ul>	<p>commercial applications</p> <ul style="list-style-type: none"> <li>Be aware of commercial processing techniques</li> <li>Understand why registration marks are used to enhance quality control</li> <li>Understand the application of surface treatments and finishes</li> <li>The names of tools and equipment used particularly when working with paper and boards</li> <li>Understand the need for nets</li> </ul>	
<b>SKILLS</b>	<ul style="list-style-type: none"> <li>Select and use specialist tools, equipment, techniques and process</li> <li>Beware of relevant health and safety issues when undertaking practical tasks.</li> <li>Prepare, select and apply appropriate surface treatments</li> <li>Identify, select and breakdown key information.</li> <li>Construction skills</li> <li>Correct use of key terminology</li> </ul>	<ul style="list-style-type: none"> <li>Select and use specialist tools, equipment, techniques and process</li> <li>Beware of relevant health and safety issues when undertaking practical tasks.</li> <li>Prepare, select and apply appropriate surface treatments</li> <li>Identify, select and breakdown key information.</li> </ul>	<ul style="list-style-type: none"> <li>Select and use specialist tools, equipment, techniques and process</li> <li>Beware of relevant health and safety issues when undertaking practical tasks.</li> <li>Prepare, select and apply appropriate surface treatments</li> <li>Identify, select and breakdown key information.</li> </ul>	<ul style="list-style-type: none"> <li>Select and use specialist tools, equipment, techniques and process</li> <li>Beware of relevant health and safety issues when undertaking practical tasks.</li> <li>Prepare, select and apply appropriate surface treatments</li> <li>Identify, select and breakdown key information.</li> </ul>	<ul style="list-style-type: none"> <li>Select and use specialist tools, equipment, techniques and process</li> <li>Beware of relevant health and safety issues when undertaking practical tasks.</li> <li>Prepare, select and apply appropriate surface treatments</li> <li>Identify, select and breakdown key information.</li> <li>Construction skills using paper and board</li> </ul>	<ul style="list-style-type: none"> <li>Identify, select and breakdown key information.</li> <li>Formulate design briefs &amp; Specification</li> <li>Undertake investigative tasks.</li> <li>Develop specialist practical drawing skills.</li> <li>Modelling</li> <li>Development of mathematical reasoning</li> <li>Isometric drawing, perspective, orthographic and other technical drawing</li> </ul>
<b>ASSESSMENTS</b>	<p><b>Key Assessment Piece:</b> <b>Classwork piece</b> – Written piece on social and</p>	<p><b>D&amp;T Progress Checkpoint</b> Students will have a progress checkpoint</p>	<p><b>Key Assessment Piece:</b> <b>End Point assessment.</b></p>	<p><b>D&amp;T Progress Checkpoint</b> Students will have a progress checkpoint</p>	<p><b>Key Assessment Piece:</b> <b>End Point assessment.</b></p>	<p><b>D&amp;T Progress Checkpoint</b> Students will have a progress checkpoint</p>



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	<p>ecological impact of Textiles industry</p> <p><b>Key Assessment Piece: End Point assessment.</b> At the end of this unit of work a topic 'test' will assess their key understanding through the scheme and measure their progress in this subject.</p>	<p>assessment to assess their knowledge and understanding of the topics covered in this unit.</p> <p><b>Key Assessment Piece:</b> Classwork piece – Evaluation on Practical activity</p> <p><b>Key Assessment Piece:</b> Home learning Investigation into Biodegradable plastics and there uses.</p>	<p>At the end of this unit of work a topic 'test' will assess their key understanding through the scheme and measure their progress in this subject.</p> <p><b>Key Assessment Piece:</b> Home learning task 2 outlined below</p>	<p>assessment to assess their knowledge and understanding of the topics covered in this unit.</p> <p><b>Key Assessment Piece:</b> Classwork product analysis.</p> <p><b>Key Assessment Piece:</b> Classwork Piece exam question on timbers and their properties</p>	<p>At the end of this unit of work a topic 'test' will assess their key understanding through the scheme and measure their progress in this subject.</p> <p><b>Key Assessment Piece:</b> Classwork Life cycle assessment on the paper making process.</p>	<p>assessment to assess their knowledge and understanding of the topics covered in this unit.</p> <p><b>Key Assessment Piece:</b> Investigation into a range of drawing styles and their differences/impact – students to produce a presentation</p> <p><b>Key Assessment Piece:</b> Classwork piece – orthographic drawings</p>
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