

# KS4 CURRICULUM: RESISTANT MATERIALS (YEAR 10)

## Overview

In Resistant Materials you will learn about:

- Core design and technology principles with some emphasis on maths and science skills
- In-depth knowledge of how different materials and manufacturing processes are used to design and make products

	Focus / Topic	Knowledge & Skills	Assessment
Autumn 1	Core Design and Technology Content <ul style="list-style-type: none"> <li>• Mini contextual challenge (Bird Houses)</li> </ul>	<ul style="list-style-type: none"> <li>• Impact of new and emerging technologies</li> <li>• Informing design developments</li> <li>• Develop an experienced understanding of an iterative design process and the relevance of these to industry practice</li> <li>• Technical Drawing (Isometric, One point and third angle orthographic)</li> <li>• Communicate their design ideas and decisions using different media and techniques, as appropriate for different audiences at key points in their designing</li> <li>• CAD/CAM programmes (sketch up and Techsoft 2D)</li> </ul>	<ul style="list-style-type: none"> <li>• Half termly mock-exam</li> <li>• Maths in Technology Quiz on Google Classroom</li> </ul>
Autumn 2	Core Design and Technology Content <ul style="list-style-type: none"> <li>• Mini contextual challenge (Bird Houses)</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic systems</li> <li>• The use of programmable components</li> <li>• The categorisation of the types, properties and structure of polymers</li> <li>• The categorisation of the types, properties and structure of metals and timbers</li> <li>• Develop a broad knowledge of materials, components and technologies and practical skills to develop high quality, imaginative and functional prototypes</li> </ul>	
Spring 1	Specialist Material Categories (RM) <ul style="list-style-type: none"> <li>• Mini Contextual challenge – Manufacture (CAD/CAM Furniture/Building Design)</li> </ul>	<ul style="list-style-type: none"> <li>• How energy is generated and stored</li> <li>• Modern and smart materials</li> <li>• The functions of mechanical devices</li> <li>• Developments in modern and smart materials, composite materials, technical materials and electronic systems</li> <li>• Develop a broad knowledge of materials, components and technologies and practical skills to develop high quality, imaginative and functional prototypes</li> </ul>	<ul style="list-style-type: none"> <li>• Half termly mock-exam</li> <li>• Maths in Technology Quiz on Google Classroom</li> </ul>
Spring 2	Specialist Material Categories (RM) <ul style="list-style-type: none"> <li>• Mini Contextual challenge – Manufacture (CAD/CAM Furniture/Building Design)</li> </ul>	<ul style="list-style-type: none"> <li>• Forces and mechanisms</li> <li>• CAD/CAM Programmes (Sketch Up and Techsoft 2D)</li> <li>• Processes used to manufacture products to different scales of production.</li> <li>• Specialist techniques used for high quality prototypes.</li> <li>• Surface treatments and finishes.</li> </ul>	<ul style="list-style-type: none"> <li>• Half termly mock-exam</li> <li>• Maths in Technology Quiz on Google Classroom</li> </ul>

Summer 1	Specialist Material Categories (RM) <ul style="list-style-type: none"> <li>Mini Contextual challenge – Manufacture (CAD/CAM Furniture/Building Design)</li> </ul>	<ul style="list-style-type: none"> <li>Investigate social and economic challenges</li> <li>Investigate the work of others</li> <li>Develop the skills to critique and refine their own ideas whilst designing and making</li> <li>Avoiding design fixation</li> <li>Developing design ideas</li> </ul>	<ul style="list-style-type: none"> <li>Half termly mock-exam</li> <li>Maths in Technology Quiz on Google Classroom</li> </ul>
Summer 2	Non-exam assessment <ul style="list-style-type: none"> <li>(Briefs released by the exam board in June)</li> </ul>	<ul style="list-style-type: none"> <li>Contextual challenge – Investigate</li> <li>Contextual challenge – Specification</li> <li>Develop an experienced understanding of an iterative design process and the relevance of these to industry practice</li> <li>Develop realistic design proposals as a result of the exploration of design opportunities and users' (and stakeholders) needs, wants and values</li> </ul>	<ul style="list-style-type: none"> <li>End of Year exams</li> </ul> <p>NEA Deadlines          Explore (AO1) 1.1 to 1.6 Create DT (A02) 2.1 <a href="#">19/7/24</a></p>

Further Information

- Design and Technology - Component 1: Written paper (100 Marks - 2 Hours) (50% of GCSE 9-1)
- Iterative Design Challenge - Component 2: Non-exam Assessment (100 Marks - Approx. 40 hours) (50% of GCSE 9-1)