

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

Summer 1	Specialist Material Categories (RM) <ul style="list-style-type: none"> Mini Contextual challenge – Manufacture (CAD/CAM Furniture/Building Design) 	<ul style="list-style-type: none"> Investigate social and economic challenges Investigate the work of others Develop the skills to critique and refine their own ideas whilst designing and making Avoiding design fixation Developing design ideas 	<ul style="list-style-type: none"> Half termly mock-exam Maths in Technology Quiz on Google Classroom
Summer 2	Non-exam assessment <ul style="list-style-type: none"> (Briefs released by the exam board in June) 	<ul style="list-style-type: none"> Contextual challenge – Investigate Contextual challenge – Specification Develop an experienced understanding of an iterative design process and the relevance of these to industry practice Develop realistic design proposals as a result of the exploration of design opportunities and users' (and stakeholders) needs, wants and values 	<ul style="list-style-type: none"> End of Year exams NEA Deadlines Explore (AO1) 1.1 to 1.6 Create DT (A02) 2.1 19/7/25

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)