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Course Overview

KEY STAGE 3 (Years 7, 8 & 9)

Year 7

During key stage three pupils cover a variety of modules on a rotation system.

Woodwork – Funny Money

The main aim of this module is to develop pupils' understanding of the properties of materials and how to apply this understanding when designing with resistant materials.

In this module, pupils tackle a design and make assignment (DMA) on the theme 'Funny Money', in which they design and make a money box. They must use materials appropriately to meet a specific technical purpose.

CADCAM

The main aim of this module is to develop pupils' understanding of how they can use Computer Aided Design and Computer aided manufacture to support their researching and designing.

computer-based tools – pupils should use a variety of computer-based tools including computer-aided design (CAD) and computer-aided manufacturing (CAM

They:

Learn the advantages and disadvantages of using CADCAM to develop and model designs.

Use CADCAM when generating, developing, modelling and communicating design ideas

Use 2-D design software to produce accurate drawings and high-quality images

Recognise that all software programs have preset patterns and limitations

Food Technology

The main aim of this module is to develop pupils' understanding of the properties of materials/ingredients and

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how to apply this understanding when designing with food.

In this module pupils follow the food competences in the 'Licence to Cook' programme.

Pupils gain the knowledge; skills and understanding they need to carry out this module successfully through product evaluation activities and focused practical tasks. Pupils will develop cooking skills as well as developing further skills and knowledge on wise food shopping, diet and nutrition and safety and hygiene.

Textiles

During the Textiles module pupils learn the skills to design and make a travel cushion/pillow using textiles materials, processes and techniques. Pupils will follow the design process and will use hand stitching techniques and machines to produce a quality outcome.

Graphics

Graphics enables students to design and make products with creativity and originality, using a range of graphic and modelling materials.

Students will be enthused and challenged by the range of practical activities possible. They will be encouraged to learn to use, understand and apply colour and design through images, to develop spatial concepts, and to understand graphic materials and their manipulation. They will design and make product(s) using graphic media and new technologies to prepare them for the world of work.

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Year 8

Woodwork

During year 8 pupils will build on the skills they have learnt in year 7 to design and make a storage solution for a client with the use of joints. Pupils will have to design and make a product, identifying suitable materials taking into account appearance, function, safety and reliability. Pupils apply their understanding of the properties of materials, eg the hardness of steel, strength of manufactured board and consider more complex finishing processes, eg enamelling, dip coating, wood staining, including their potential environmental impact and health hazards

WOODEN BOX USING CADCAM

The main aim of this module is to teach pupils how they can use ICT to plan their making, find out about the making process, and make products through CAM (computer-aided manufacture).

Pupils produce a design that can be outputted using the laser cutter. They use ICT to plan their making, to adapt or process their design ideas for different machines and materials, and to seek information and help them make decisions about the making process. They then use CAM to realise their ideas. Pupils gain the knowledge, skills and understanding they need to carry out the module successfully through product evaluation activities and focused practical tasks. Pupils use ICT:

- to plan their making
- to inform the making process
- to make products using CAM

Food Technology

The main aim of this module is for pupils to explore the properties of materials/ingredients when designing, so that they will be able to identify appropriate materials/ingredients for a task. Pupils gain the knowledge, skills and understanding they need to carry out the practical elements successfully through product evaluation activities and focused

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practical tasks. Pupils will apply their understanding of the physical and chemical properties of foods, eg coagulation of protein, gelatinisation of starch, caramelisation of sugar, shortening of fats, water absorption of fibre. Pupils will also consider the aesthetics of food, eg appearance, taste, odour, texture, and how this affects what consumers choose.

Textiles

Pupils gain the knowledge; skills and understanding they need to carry out the practical elements of this module successfully through product evaluation activities and focused practical tasks. Pupils will learn about the processing of raw materials and potential end uses.
Pupils will recognise the connection between the properties of fibres, their performance and how they are used, eg cotton is cool to wear which makes it ideal for knitted T-shirts. Pupils will also learn how the properties and working characteristics of textile materials, eg elasticity, drape, absorbency, relate to their composition, construction and finishing, and how synthetic fibres can be made to emulate natural fibres.

Graphics

Graphic enables students to design and make products with creativity and originality, using a range of graphic and modelling materials.

Students will be enthused and challenged by the range of practical activities possible. They will be encouraged to learn to use, understand and apply colour and design through images, to develop spatial concepts, and to understand graphic materials and their manipulation. They will design and make product(s) using graphic media and new technologies to prepare them for the world of work.

Year 9

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	Food Technology The main aim of this module is for pupils to apply their understanding of the properties of materials/ingredients when designing. In this module, pupils tackle a design and make assignment on the theme 'Specialist diets'. They design and make a meal for customers with special dietary needs, selecting the ingredients they will use according to their nutritional and working characteristics, and matching them to appropriate making processes. The optimum use of materials/ingredients should reconcile a number of criteria, including the working characteristics, production processes, environmental and social issues, costs and aesthetics.
	Computer Aided Design During this module pupils work to design and make a coordinated range of promotional products, eg for a local event or a commercial company. They will use ICT effectively to help them work collaboratively on the project, and using CAD/CAM (computer-aided design and manufacture). Pupils will find out about the benefits and drawbacks of face-to-face and remote communication and the use CAD/CAM.
	Woodwork The main aim of this module is for pupils to learn about designing for manufacturing and the main commercial processes that are used by manufacturers. The emphasis is on thinking about how a product will be made as an integral part of the design process, rather than as an afterthought once the design is complete. Pupils gain the knowledge; skills and understanding they need to carry out the tasks successfully through product evaluation activities and focused practical tasks. They will design a product that is suitable for manufacture in volume and learn how manufacturers generate and develop new ideas for products, eg through lifestyle research, modelling. Pupils will learn what is meant by 'one-off' and 'high-volume' production and find out about the main commercial manufacturing processes.

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Textiles

The main aim of this module is for pupils to apply their understanding of the properties of materials when designing. In this module, pupils tackle a design and make assignment on the theme. They design a 'bag', selecting the materials they will use according to their characteristics, and matching them to appropriate making processes. The optimum use of materials should reconcile a number of criteria, including the working characteristics, production processes, environmental and social issues, costs and aesthetics. Pupils gain the knowledge; skills and understanding they need to carry out the tasks successfully through product evaluation activities and focused practical tasks. They understand that the properties of materials, eg crease resistance, biodegradability, influence what they select for a design, select materials and match them to appropriate making processes

Graphics

Graphic Products enables students to design and make products with creativity and originality, using a range of graphic and modelling materials.

Students will be enthused and challenged by the range of practical activities possible. They will be encouraged to learn to use, understand and apply colour and design through images, to develop spatial concepts, and to understand graphic materials and their manipulation. They will design and make product(s) using graphic media and new technologies to prepare them for the world of work.

KEY STAGE 4 (Years 10 and 11)

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Design and Technology: Product Design (4555) Design and Technology: Resistant Materials (4560) Design and Technology: Food Technology (4545)	
Year 10	
First Term (Sept- Dec)	This is the first year of the two year course and deals with the students acquiring the underpinning skills that are essential to their success in both the written paper and the controlled assessment. For the first term pupils will complete a number of small focused tasks. Students will follow set tasks that will teach them the underpinning skills.
Spring Term (Jan- Apr)	Coursework 60% All pupils will start working on criteria 1 of their coursework. This will include a design brief set by the exam board, task analysis, client profile, and mood board. Students will continue working on criteria 1; this will include a Gantt chart, Questionnaire and results, Specification, Research Analysis.
Summer Term (May-July)	Students will create imaginative and innovative ideas that have been developed, demonstrating creativity, flair and originality. Further developments will be made to take account of ongoing research A coherent and appropriate design strategy, with clear evidence of a planned approach, adopted throughout The implications of a wide range of issues including social, moral, environmental and sustainability, are taken into consideration and inform the development of the design proposals
Year 11	
Autumn term (Sept- Dec)	All work will be recorded and presented in a professional portfolio which demonstrates how the project has evolved towards a final outcome.

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Spring Term (Jan- April)	Excellent development work through experimentation with a wide variety of techniques and modelling (including CAD where appropriate) in order to produce a final design solution Introduction to exam paper: Students will start revising, materials, environmental issue, manufacturing etc. Fully detailed and justified product/manufacturing specification taking full account of the analysis undertaken
Summer Term (May-July)	Students will sit a number of past papers. EXAM (2 hours): Students will sit an exam which will contribute upto 40% of their overall GCSE grade.