Curriculum Map

Statement of Intent

We aim to provide learners with the opportunity to become resilient, independent, creative and confident problem solvers.

We encourage curiosity and responsibility where pupils consider the environmental, moral and social impact of products they use and the products that they design.

Working to solve real and relevant problems in a variety of contexts and materials.

We have high expectations of all our pupils and lead by example.

Our curriculum

Our KS3 curriculum is the springboard and foundation for pupils to prepare them for the GCSE requirements, whilst also giving them a rounded view of a modern consumer and designer.

As a department we feel strongly that key practical skills should be developed and refined at KS3, to enable pupils to feel confident and have the skills to work independently at KS4 which is vital to allow them to flourish.

Year 7 and 8 are taught on a carousel rotating around Resistant Materials, Food and Textiles for a 13 week project.

Year 9 have 13 weeks in each subject area, divided into two shorter rotations.

KS4 Year 10 and 11 following GCSE Design Technology and GCSE Food preparation and Nutrition with AQA.

All pupils are taught by a specialists, we feel that this is vital.

Key concepts

Resistant Materials and Textiles

1. Identify and investigate
2. Designing and development
3. Realisation
4. Analyse and evaluate
5. Knowledge and understanding of technical principles

Food

1.Food, nutrition and health
2. Food Science
3. Food Safety
4. Food choice
5. Food provenance
6. Food Preparation and cooking techniques.

Pillars of progression

- Practical competence
- Analysing and evaluating
- Environmental awareness / conscientious consumer

	Rotation 1 13 weeks	Rotation 2 13 weeks	Rotation 3 13 weeks
7	**Key themes covered** ***1. Resistant materials*** Health and safety, Research, designing and manufacturing. Timber based product Man made boards and natural woods and their impact on the environment.	**Key themes covered** **2. Food Technology** **Health and safety, Knife skills, Weighing and measuring, following a method, creaming method, rubbing in method, Bread making, blending.** **Introduction to Eatwell Guide.** **Introduction to sensory analysis.**	**Key themes covered** **3. Textiles** **Health and safety of key equipment, research and investigation of a brief, designing, use of key equipment – Sewing machine and iron, creating a paper pattern, introduction to techniques - Tie-dye, applique and Trapunto.** **Pupils design and create a 3.D monster – learning to use the Equipment and processes.** **Introduction to fibres and fabrics – where do fabrics come from?**
	Key assessments Product Analysis, Design Ideas and final product	**Key Assessments** Eatwell guide evaluation, scone practical, end of rotation assessment	**Key Assessments** Design development, sewing machine test sheet and final product.
8	**Key themes covered** **1. *Resistant materials*** Research into types of CAD/CAM. Exploring and using at least two types of CAD/CAM (laser cutting, sublimation printing) within the production of a money box. Learning making and finishing process for plastics. Paper and board, 3D packaging. Evaluating a project in depth. Learning about different types of plastics and how they are sourced.	**Key themes covered** **2. Food** **Understanding how bacteria grow and how to preserve food** Healthy Eating- understanding the key macro and micro nutrients Understanding the effects on cooking using starches and aeration techniques Evaluating energy balance Looking at dietary needs through life Understanding fair trade	**Key themes covered** 3. **Textiles** Decorative technique project. Introduction to silk painting, Reverse applique, and heat transfer. Creativity in design, how to create a repeat pattern, how this is done in industry – screen printing. Fabric Construction – Knitting, weaving and bonding. Blending and mixing.
	Key assessments Design ideas. Successful inputting of CAD which then result in a working product. Accurate recording of new processes. (skills/step-by-step sheet)	**Key Assessments** Comparison of chicken nuggets Swiss roll practical assessment Assessment of nutrient and functions of ingredients knowledge	**Key Assessments** Peer assessment of inspirational mood board, technique step-by-step sheet, practical technique assessment – Discussion on level of demand.

	Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5	Rotation 6
Year 9	**Key themes covered** 1. Resistant Materials Key joining methods for woods and plastics. Encouraging varied designs based on individual themes. Working to designs constraints and specification requirements set by a manufacturer. Developing independence in the planning and production of their final products.	**Key themes covered** 2. Food Technology Hygiene and the law How we make food choices to include vegetarianism Evaluation of different pastries by tasting and then making a product with shortcrust, choux and puff pastry Food from around the world Food relating to religious festivals	**Key themes covered** 3. Textiles Designing to specification criteria. Environmental issues and recycling. Designing with sustainability or the environment in mind. Independent selection/recall of techniques previously learnt to encourage iterative design. Use of CAD/CAM where appropriate. Evaluation of product.	**Key themes covered** **Resistant materials** **4.Ergonomics project- pizza cutter.** Introduction to ergonomics and anthropometrics. Focus being on the application of gathered anthropometric data to relevant designs. Independently writing a brief and specification. Using the work of Alessi to inspire creative and iterative designs. Extensive modelling and feedback with client. Use of CAD modelling and manufacturing.	**Key themes covered** 5. Food Technology Multi Cultural Project – Evaluation of food from around the world including culture, food, traditions, diets/ dietary requirements. Plan and prepare 4 dishes from the around the world, showing a range of skills. NEA2 type assessment to produce 2 products in 90 minutes.	**Key themes covered** 6. Textiles Multi Cultural Project. Taking inspiration form the work of others/other cultures Introduction to Batik, couching and machine embroidery (More able pupils). Producing a wall-hanging using batik based on their chosen culture. Designing for a specific client, creating a client profile. Pupils plan Batik layering. Research into ways of hanging the product. Introduction to Fairtrade and Fairtrade principles. Moral and social issues relation to the textiles industry.
	Key Assessments Producing a range of design ideas that are varied and make good use of the research that has been gathered. Completion of a final working and well made product that fully meets all of the design specification requirements.	**Key Assessments** Evaluation of a dish Practical assessment of apple pie	**Key Assessments** Use of recycling/ consideration of sustainability. Designing and final product quality of finish. Evaluation.	**Key Assessments** Assessment of sections of the practise NEA pizza cutter ergonomics project.	**Key Assessments** Evaluations Quality of outcome Range of skills, understanding of culture, nutritional analysis.	**Key Assessments** Client profile Fairtrade questions and mind map Quality of final product.

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Year 10 Design Technology Textiles	**Key themes covered** **Textiles** Fashion project - Introduction to pattern cutting – using and adapting paper patterns for clothing. Introduction to influential designers - research and designing based on inspiration from a designer influence. Research including product analysis and designer research. Design development skills Presentation skills.	**Key themes covered** Completion of fashion project Production of final fashion prototype. Including How to create shape in fabric – Darts, pleats, gathers. How to insert a zip or button fastening. Evaluation – in terms of design inspiration and functionality of product. Topic – Fabrics Including Fibres and their origins, advantages and disadvantages. Methods of construction – uses, advantages/disadvantages. Stock forms/ types/ sizes. Environmental/social impact	**Key themes covered** Topic – *Smart Materials, technical textiles and composite materials. *Printing and finishing techniques. *Industrial Manufacture – Methods of Production, JIT, Lean manufacture, CIM, Robotics and CAD/CAM. *Modern and smart materials.	**Key themes covered** Practice NEA project. • How to analyse a context. • Client profiling and interviews, • Writing a design brief and specification • Developing iterative design - Design development and modelling.	**Key themes covered** Completion of practice NEA • Production of final prototype • Testing and evaluation Preparation for year 10 Exam Focused revision. Review of the year 10 exam, reflecting on areas to improve in year 11.	**Key themes covered** NEA begins AQA release contexts on 1st June. Section A • Choosing and analysis of context • Identification of problem and further analysis • Research – Client profile and profiling. • Product analysis. • Additional research led by the choice of problem – pupil led. • Review of research.
	Key Assessments Whole project assessed. First assessment – Iconic Designer research, product analysis Design Development, designing for a specific client.	**Key Assessments** Final assessment of fashion project including evaluation. Mid topic test – Methods of production and Fibres and Fabrics	**Key Assessments** End of unit test on topics learnt.	**Key Assessments** Assessment of section 1 and 2 of the practice NEA.	**Key Assessments** Whole project assessment. Year 10 examination.	**Key Assessments** Assessment of section A – Research and investigation.

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Year 11 Design Technology Textiles	**Continuation of NEA** **Section B** Writing of the design brief and detailed specification Based on conclusions from their investigations students will outline design possibilities by producing a design brief and design specification. **Section C** Generating design ideas Students should explore a range of possible ideas linking to the contextual challenge selected. These design ideas should demonstrate flair and originality and students are encouraged to take risks with their designs. Students are encouraged to be imaginative in their approach by experimenting with different ideas and possibilities that avoid design fixation. **Section D** Developing design ideas Students will develop and refine design ideas, through modelling and experimentation. This may include, formal and informal 2D/3D drawing including CAD.	**Continuation of NEA** **Completion of section D** Students will develop at least one model, through trialling of processes and techniques Students will also carry out additional research and select suitable materials and components. **Section E** Realising design ideas Students will work with a range of appropriate materials/components to produce prototypes that are accurate and answer the design brief and problem as effectively as possible.	**Continuation of NEA** **Section F** Analysing and Evaluating– Testing of product, modifications and final evaluations of the product. Organising and evidencing of the whole project for submission. Preparation for Mock examination Mock examination Topic - **Energy generation and storage** Fossil fuels, Nuclear power, renewable energy and energy storage systems. Topic – **Mechanical Devices** • Different types of movement • Changing magnitude and force • Levers	Topic – **Forces and stresses** • Tension, compression, bending, torsion and shear. Revision sessions of topics covered • Core technical principals • Specialist technical principals **Maths revision-** Calculation of quantities of materials, costs and sizes. • Scaling drawings, analysing responses to user questionnaires. • Calculate surface area and volume. • Measurement and marking out, creating tessellated patterns. • Calculate areas of triangles and rectangles, surface areas and volumes of cubes. **Practice tests** – Identification of gaps or areas to focus individual revision **Exam technique** Additional work on **Designing and making principles** • Communication of design • Investigating the work of others • Product analysis techniques, areas to focus on.	**Key themes covered** **Focused revision** **Final exam**
	Key Assessments Constant verbal feedback throughout Each section is assessed and marks given along with feedback in line with AQA guidance.	**Key Assessments** Final marking and grading of the NEA	**Key Assessments** End of topic tests Mock examination marking and review	**Key Assessments** Assessment of practice tests	**Key Assessments** **GCSE Exam paper**

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Year 10 Design Technology Resistant Materials	**Key themes covered** **Resistant materials** **Key storage project-** Development and modelling of their design, leading to a final design idea. Practical modelling, advantages and disadvantages. Introduction into metals, correct tools use and manufacturing skills, including forging, brazing, pewter casting and dip coating. Quality control of metal elements. Stock forms of metals, environmental impacts of using metals, properties and uses. Sustainability and the long term impact of manufacturing our designs .	**Key themes covered** **Resistant materials** **Completion of key storage project-** Manufacturing of final design to include wood joints, brazed and dip coated steel hook and pewter cast key ring. Exploring different types of manufacturing processes and production lines- mass, batch, JIT etc. Finishing processes of various materials and evaluation of final product-focus being on links to specification and design brief.	**Key themes covered** **Resistant materials** **Clock project-** Mini NEA- solving the problem of young people not being able to tell the time. Investigation and evidence of the problem, research into a buyer. Developing design brief and specification based on research. pupils to work more independently. pupil s to research and select materials drawing on prior knowledge and experience of manufacturing. Focus on solving the problem and creating practical opportunities. Independent planning for manufacture post design development.	**Key themes covered** **Resistant materials** **Completion of key storage project-** Thorough modelling and development. Manufacturing of final design following step by step plan. Emphasis on pupils working independently throughout. Thorough evaluation using GCSE guidelines to help improve outcomes.	**Key themes covered** **Resistant materials** **Theory unit-** Crowd funding, fair trade and virtual marketing. Market pull/technology push. Mini mobile phone design project and product analysis. Planned obsolescence, design for maintenance. Levers and cranks mini experiments. Communication of design techniques. Developing and refining skills for pizza project.	**Key themes covered** NEA begins AQA release contexts on 1st June. Section A • Choosing and analysis of context • Identification of problem and further analysis • Research – Client profile and profiling. • Product analysis. • Additional research led by the choice of problem – pupil led. • Review of research.
	Key Assessments A well formed and	. **Key Assessments** The successful	**Key Assessments** Research and	. **Key Assessments** The successful	**Key Assessments** End of term test on	**Key Assessments**

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Year 11 Design Technology RM focus	**Continuation of NEA** **Section B** Writing of the design brief and detailed specification Based on conclusions from their investigations students will outline design possibilities by producing a design brief and design specification. **Section C** Generating design ideas Students should explore a range of possible ideas linking to the contextual challenge selected. These design ideas should demonstrate flair and originality and students are encouraged to take risks with their designs. Students are encouraged to be imaginative in their approach by experimenting with different ideas and possibilities that avoid design fixation. **Section D** Developing design ideas Students will develop and refine design ideas, through modelling and experimentation. This may include, formal and informal 2D/3D drawing including CAD	**Continuation of NEA** **Completion of section D** Students will develop at least one model, through trialling of processes and techniques Students will also carry out additional research and select suitable materials and components. **Section E** Realising design ideas Students will work with a range of appropriate materials/components to produce prototypes that are accurate and answer the design brief and problem as effectively as possible.	**Continuation of NEA** **Section F** Analysing and Evaluating – Testing of product, modifications and final evaluations of the product. Organising and evidencing of the whole project for submission. Preparation for Mock examination Mock examination Revisit key terms- Ergonomics Anthropometrics Environmental impact of designing and manufacturing (6rs, ecological and social footprint) Renewable energy. Modern materials Smart materials Forces and stresses- mini bridge experiment.	**Key themes covered** **Maths revision-** Calculation of quantities of materials, costs and sizes. • Scaling drawings, analysing responses to user questionnaires. • Calculate surface area and volume. • Measurement and marking out, creating tessellated patterns. • Calculate areas of triangles and rectangles, surface areas and volumes of cubes. **Practice tests** – Identification of gaps or areas to focus individual revision **Exam technique** Additional work on **Designing and making principles** • Communication of design • Investigating the work of others • Product analysis techniques, areas to focus on.	**Key themes covered** **Focused revision** **Final exam**
	Key Assessments Constant verbal feedback throughout Each section is assessed and marks given along with feedback in line with AQA guidance is given.	**Key Assessments** Final marking and grading of the NEA	**Key Assessments** End of topic tests Mock examination marking and review	**Key Assessments** Assessment of practice tests with feedback	**Key Assessments** **GCSE Examination**

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Year 10 Food preparation and nutrition	**Key themes covered** Food, nutrition and health: knowledge and unders tanding of Micro/Macro Fat/water soluble Fibre HBV/LBV Protein Complex/ simple CHO The nutritional needs and h ealth and making informed choic es for a varied and balanced diet Dietary diseases Portioning a chicken Knowledge of pastry Making pasta	**Key themes covered** Heat transfer and why we cook food The functions of ingredients in cooking – starch, protein, gluten, raising agents, browning and emulsions	**Key themes covered** Food safety and hygiene Food labelling Food from around the world Sensory analysis	**Key themes covered** NEA1 practice Evaluate and research an NEA1 subject Complete research, hypothesis, investigations, evaluations.	**Key themes covered** Practice NEA2 Completing research Preparing for technical dishes and final dishes	**Key themes covered** Practice NEA2 Complete 2 technical dishes, evaluating presentation techniques, writing a time plan for 2 dishes in 90 minutes, evaluating final dishes. BBQ food Gelatine dessserts
	Key Assessments **End of topic tests in nutrition** **Practical assessment**	**Key Assessments** **End of topic test in functions of ingredients** **Practical assessment**	**Key Assessments** **Food hygiene test (Level 2)** **Evaluation of sensory evaluation**	**Key Assessments** **NEA1 report**	**Key Assessments** **Year 10 exam** **Research section of NEA2**	**Key Assessments** **Practical assessment** **Evaluation of technical dishes and final dishes**

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Year 11 Food preparation and nutrition	**Key themes covered** • Food investigation task (**Nea 1)** Students will investigate the working characteristics and the functional and chemical properties of a particular ingredient through practical investigation. They will produce a report which will include research into 'how ingredients work and why'.	**Key themes covered** NEA1 Completion NEA2 Research and complete the technical dishes to showcase their skills	**Key themes covered** Nea 2 Students will prepare, cook and present a final menu of three dishes to meet the needs of a specific context. They will then produce their final menu within a single period of no more than 3 hours, planning in advance how this will be achieved.	**Key themes covered** Revision The following will be covered in this period: • how the written exam is organised • how to prepare for the written exam • the command words used in written exam • the types of questions that will be asked in a written exam including: multiple choice • data response • structured question • open-ended response questions or free response questions	**Key themes covered** **GCSE Examinations start.**
	Key Assessments Students produce a report of between 1,500–2,000 words (approx. 6–8 sides of A4 or A3 equivalent). Practical investigations are a compulsory element of this non-exam assessment.	**Key Assessments** NEA1 portfolio	**Key Assessments** NEA2 portfolio Year 11 mock exam	**Key Assessments** Revision topic exam question practice	**Key Assessments**