Kettlethorpe High School

'Together, be the best we can be.'

Present

Achieving

Excelling

Design and Technology Curriculum

<table>
<tr><td>Subject quote</td><td>"Design is not just what it looks like and feels like. Design is how it works."
— Steve Jobs</td></tr>
<tr><td rowspan="2">Curriculum summary</td><td>At Kettlethorpe High School, we have a whole-school holistic curriculum model which seeks to plan for, teach, and assess progress against our core mission for pupils, our vision and ethos, as well as our cross-curricular golden threads and our identified subject-specific knowledge and skills. Through our carefully planned curriculum maps, knowledge and skills are explicitly planned and taught in coherent and progressive steps. As pupils make progress through the curriculum, this is the main measure of success in design and technology which is a practical and creative subject that aims to develop the design skills and techniques of pupils alongside building their knowledge and expertise of different manufacturing processes. The design and technology curriculum commits to fulfilling the 7 whole-school curriculum principles ensuring that what we deliver, and pupils receive, is:</td></tr>
<tr><td>Broad and Balanced
Engaging
Personalised
Transformational
Inclusive
Aspirational
Values-Based</td></tr>
<tr><td>Links to life and future destinations (careers)</td><td>Product Designer, Graphic Designer, Fashion/Textile Designer, Interior Designer, Jewellery Designer, Mechanical Engineer, Civil Engineer, Electrical/Electronic Engineer, Architectural Technologist, CAD Technician, Architect, Architectural Technologist, Construction Project Manager, Furniture Designer/Maker, Model Maker/Prototyper</td></tr>
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DESIGN TECHNOLOGY
curriculum

Year 7

Health & safety training
Learning how to stay safe in the work shop activities

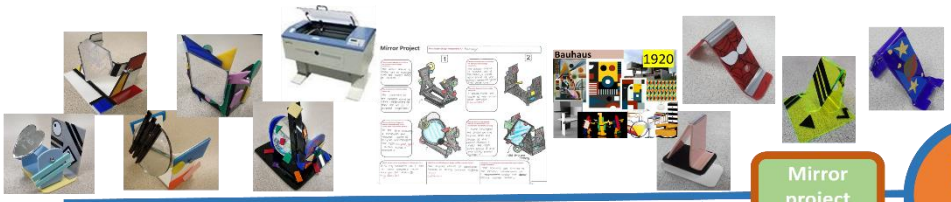
Animal project

Practice project
Use of templates to make a simple slotted animal design with the use of basic hand tools.

Designing and prototype
Design and make models of preferred design for the main project.

Machine training
certificates on completion of training and instruction for machines.

Making final project
make your final design using the skills you have learnt in the project



Year 8

Mirror project

Practice project – phone stand
Design and model ideas for the plan of the phone stand.
Practice using machines needed for the mirror project.
Evaluate progress and summarise skills learnt so far

Design eras
Look at past design movements, including, Bauhaus, De Stijl and Memphis.

Polymers theory
Learn the origins of polymers and how they are made. Look at recycling and sustainability.

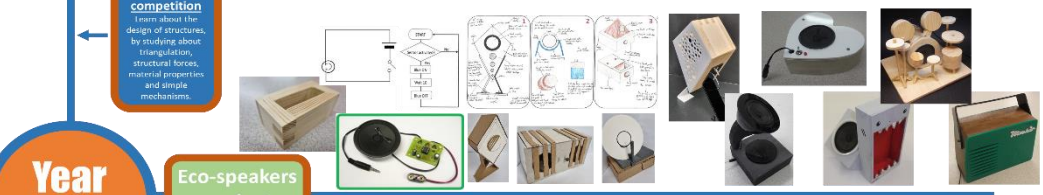
Design and prototyping
Produce a range of design ideas, make a scaled prototype model of your best design.

CAD/CAM
Learn CAD drawing for parts which links to CAM machinery to manufacture parts.

Manufacturing
Use tools and machines practiced in the phone stand project to make your final mirror design.

Structures project

Structures competition
Learn about the design of structures, by studying about triangulation, structural forces, material properties and simple mechanisms.



Year 9

Eco-speakers project

Wood working skills
Learn how to make four different common wood joint, including, mitre, rebate, dowel and finger joints.

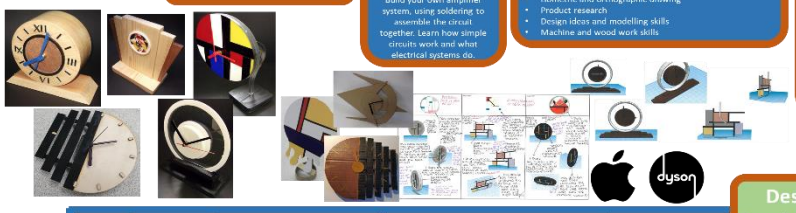
Electronic knowledge and skills
Build your own amplifier system, using soldering to assemble the circuit together. Learn how simple circuits work and what electrical systems do.

Speaker project
Project manage your own speaker product, develop your skills in the following:

- Isometric and orthographic drawing
- Product research
- Design ideas and modelling skills
- Machine and wood work skills

Theory knowledge
50% of the course is learning the theory of different DT topics, you will study and be tested on the following:

- Common day to day materials
- Modern and smart materials
- Composite materials
- Material properties and forces
- Sustainability
- Environmental factors
- Stock from materials



Year 10

Designer inspired clock

Theory knowledge
50% of the course is learning the theory of different DT topics, you will study and be tested on the following:

- Mechanisms
- Ergonomics & anthropometrics
- Energy generation
- Production techniques
  - JIT
  - FMS
  - Batch product
  - Mass production
  - Automation

Clock project
Project manage your own designer inspired clock, basing your ideas on a famous designer you have learnt about in the course. Develop your skills in the following:

- Cad modelling skills
- Product research
- Design ideas and modelling skills
- Machine and CAM skills

Famous designers and companies
Learn about famous product designers in the field of product design, and be aware of famous companies successful in the manufacture of desirable products.

CAD drawing skills
Learn how to use 3D modelling software to further develop your designing skills.

Year 11

AQA NEA project

Non-external assessment (NEA)
50% of final grade
Research, design, model and make a product of your own choosing.
Approximately 35 to come up with a concept product that solves a particular problem you have briefed in your project.
You are required to use all of the skills you have developed in KS4 for your final year, project manage you time.
Start date for the NEA is June of year 10.

Final year exam
50% of final grade
You will be tested on your theory knowledge of design technology covered in your lessons from years 9 and 10.

Next Steps

- Product design A-Level
- Degree level qualifications
- Apprenticeship routes
- Architecture
- Product designer
- Mechanical engineering
- Civil engineering
- Carpentry

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Design and technology – curriculum overview

All pupils will study design and technology in Year 7 and 8 and many then choose to study design and technology (D&T) GCSE.

Pupils learn to produce projects of work from year 7 through to year 11, that aim to demonstrate:

Creative Skills
Idea generation: Coming up with original and useful design ideas
Sketching & visualisation: Communicating concepts through drawing and modelling
Innovation: Thinking outside the box to improve or rethink everyday products
Practical & Technical Skills
Making: Using hand tools, machinery, and digital tools (e.g. 3D printers, laser cutters)
Material handling: Choosing and working with wood, metal, plastics, textiles, etc.
Measuring & cutting accurately: Demonstrating precision and care
Using CAD/CAM software: Creating digital models or prototypes
Thinking & Problem-Solving Skills
Analysing a design brief: Understanding the needs and limitations of a project
Decision-making: Selecting the best materials, tools, and design solutions
Troubleshooting: Solving practical and design challenges during making
Teamwork & Collaboration Skills
Sharing ideas: Working constructively with peers in group projects
Listening to feedback: Using peer and teacher advice to improve work
Supporting others: Helping classmates with tools, safety, or ideas
Evaluative & Reflective Skills
Testing prototypes: Checking function, quality, and suitability
Identifying improvements: Spotting what could work better and why
Reflecting on process: Understanding what worked well and what didn’t
Organisation & Independence
Planning tasks: Following the design process from research to evaluation
Time management: Completing projects to deadlines
Taking initiative: Working independently and responsibly

Design and technology knowledge and skills

D&T	Slot together animals
Year 7	Understand how the machinery works and how the project is made. Know how to stay safe in the workshop when doing work. To know where timbers come from and how they are produced into something that can be used for making with. To cut out the shape of your animal safely and effectively by using a variety of different types of saws. To cut out the shape of your animal accurately and to then use the appropriate sanding equipment to achieve a nice surface finish and good profile. To offer feedback on each other's work so that everyone in the class can understand how and what they themselves can do to their work in the coming lessons. To cut out the shape of your animal accurately and to then use the appropriate sanding equipment to achieve a nice surface finish and good profile. To be able to describe in writing what skills you have learnt, why you have learnt them and to explain how your making skills have improved. Everyone to peer assess the work of the class and evaluate the learning that we have done this term. Linked to AO2 and AO4 of GCSE assessment criteria.

D&T	Phone stands and mirrors
Year 8	Investigate the working properties and characteristics of acrylic. Practice our cutting, shaping, drilling and assembly skills each lesson. To know the names of common everyday plastics. Learn from each other's good and poor points with our work and identify how our mirrors will avoid potential problems. To know what the major differences are between the three designs movements are. Use different drawing techniques and idea generations to help be creative. To have designs that clearly have inspiration from your chosen design movement. Make an effective and realistic scaled model to identify areas of strength and weakness that might be found with the design. Learning to use different materials and equipment safely and accurately for us to be able to make our mirror designs. Compare our work to other pupils in the class and look at how well our work meets the project criteria and expectations. Linked to AO2, AO3 and A04 of GCSE assessment criteria.

D&T	Year 9 Mechanical lamps / headphone stands	Year 10 Designer inspired clocks	Year 11 NEA projects
GCSE	Everyone to be able to use the basic tools and equipment needed to do competent DT work in the workshop. To incorporate a small USB light fitting into the shade of the lamp and to successfully assemble simple linkage arms and legs to the body of the lamp. Everyone to be able to solder safely and effectively. Everyone to be able to name the components and to explain their importance and functions. To be more aware of the stock form materials that you have to work with. Use different materials and processes correctly and to have a good material finish. Everyone to create a working drawing of your design that is accurately drawn and has all correct measurements in place. To be able to identify and understand the uses of mechanisms in day-to-day items. Look at different types of structural forces. Read and understand a simple isometric drawing and to construct a technically correct 3D drawing.	Look at examples of everyday products and discuss how these are impacted by the common practices of industries. Analyse the research we have conducted and use our earlier research to help create our criteria. Justify why the specification points are important and how they will impact on to the design To produce original designs that meet the design brief in the project and be similar to a chosen design movement. Further develop and experiment your design ideas by making scaled models of your final design ideas. Everyone to create a working drawing of your design that is accurately drawn and has all correct measurements in place. Produce parts that have a high level of accuracy and quality. Identify the strengths and weaknesses of your product and to offer suggestions on how the product could be improved or modified To offer reasons why CAD/CAM is used in industrial manufacturing and to give examples of instances when FMS, JIT and lean manufacturing is used by manufacturers.	Identify the different people we can focus the project on and suggest what the products would need to be able to do. Using an analysis method, identify the different possibilities needed to consider when designing. Market research existing products that are a close suit to the design movement of the project. Create a personal profile of the target market of your project. Analyse research conducted and use earlier research to help create criteria. Justify why specification points are important and how they will impact on to the design. Generate original and creative initial design ideas that meet client's design requirements. Using 2D Design to make parts for product, whether they be templates or finished parts. To show evidence of having used CAD to make developments with project. Experiment with design ideas and to developed this by modifying the design even further. Further develop and experiment design ideas by making scaled models of final design ideas.

	Explain the different classifications of natural timber, the properties and uses of a variety of softwoods and hardwoods. Know the primary sources of materials for producing papers and boards. Explain the properties and uses of a variety of thermoforming and thermosetting polymers. Explain the different classifications of metals. Links to AO1, AO2, AO3 and AO4 of the GCSE assessment criteria.	Everyone should be familiar with how the 6R's method can be used to improve the design of a product so that it considers the environment much more wisely. Be able to explain the arguments for and against the selection of fossil fuels. Be able to explain the social issues in the design and manufacture of products, and the need for fair trade in the world. Links to AO1, AO2, AO3 and AO4 of the GCSE assessment criteria.	Need to use a range of processes independently to a reasonably high level to make a product that is fit for purpose. Draw an orthographic drawing neatly and accurately. Identify the strengths and weaknesses of product and to offer suggestions on how the product could be improved or modified. Links to AO1, AO2, AO3 and AO4 of the GCSE assessment criteria.

Design and technology – Golden Threads Mapping

SMSC				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Consider social inclusivity, use of sustainable and ethically sourced materials, and respect for cultural symbolism in animal representation.	Consider social inclusivity in style and function, use materials that are ethically and sustainably sourced, and respect the cultural origins and meanings behind the chosen design movement.	When making a sustainable headphone stand, students should consider using eco-friendly materials, ensure the design is inclusive and accessible, and respect cultural values related to sustainability and responsible consumption.	When making a famous design-inspired clock, students should consider inclusive design, use of ethical and sustainable materials, and show respect for the cultural and historical context of the original designer's work.	When making a user-centred product, students should consider the diverse needs of users, use sustainable and ethically sourced materials, and respect cultural differences to ensure the product is inclusive and responsible.
Personal Development				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Being independent in developing their creative ideas. Responding to feedback and acting upon it. Learning and experiencing new equipment and machinery.	Being independent in developing their creative ideas. Responding to feedback and acting upon it. Having opportunities to choose their own level of challenge and to show their ability to be problem solvers.	Pupils can improve personal development in GCSE Design and Technology by developing independence, problem-solving skills, and creativity through managing and reflecting on their own personal projects.	Pupils can improve personal development in GCSE Design and Technology by developing independence, problem-solving skills, and creativity through managing and reflecting on their own personal projects.	Pupils can improve personal development in GCSE Design and Technology by building empathy, communication, and critical thinking skills when designing solutions focused on real user needs.
Numeracy				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Use of ruler and measurements Use of stencils Use of technical words and terminology – symmetry, vertical, horizontal, parallel	CAD software – use of measurements and calculations – radius, diameter, mm and cm's Use of stencils, templates for folding at angles	More advanced CAD software activities Orthographic and isometric drawing skills Diameters, measurements, mechanism calculations	CAD modelling software – use of different commands and tools to have accurate drawings Prototype modelling – scales and proportions Material requests – measurements and quantities	CAD modelling software – use of different commands and tools to have accurate drawings Prototype modelling – scales and proportions Material requests – measurements and quantities
Cultural Capital				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**

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Knowledge of Nature and Wildlife – Understanding different animals, their habitats, and their significance in various cultures. Design and Craft Skills – Gaining hands-on experience in design, problem-solving, and making, which are valued in many cultures and careers.	Knowledge of Design History – Learning about influential designers and design movements (e.g. Art Deco, Bauhaus), and their impact on culture and society. Understanding how design reflects values, trends, and social changes across different eras and cultures.	Understanding the importance of sustainability and responsible use of natural resources. Learning about the impact of material choices on people and the planet. Recognising their role in promoting sustainable consumption within wider cultural and social contexts.	Learning about iconic designers and movements that shaped modern design. Recognising how design reflects social values, technology, and cultural trends of different eras. Developing skills to reinterpret classic designs while respecting their original cultural significance.	External task allows pupils to link their work to any culture.
Substantive Knowledge				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Basic health and safety in the workshop Learning to use basic tools and machinery	Develop skills using different tools and equipment Learn and develop designing and modelling skills Introduced to basic CAD / Cam skills.	Learn core principles in D&T for the exam – mechanisms, common materials and material properties Develop workshop expertise using more technical and advance equipment.	Learn advanced knowledge for the exam with principles about industry and the environment. Develop advanced CAD skills.	Project manage own project for the NEA
Disciplinary Knowledge				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Practice projects before key assessment project work Practice good health and safety judgement Learn to use basic tools and machinery	Practice projects before key assessment project work Practice good health and safety judgement Learn to use basic tools and machinery Use prototypes and models to develop design ideas Use of CAD software for CAM manufactured parts	Core principles – common materials Material properties Mechanisms Systems and control Environment and sustainability Technical drawing – isometric and orthographic Modelling and prototyping Wood working skills Simple electronics and soldering	Technical principles – modern and smart materials Industry and enterprise Energy generation CAD / CAM skills Famous designers and companies	Applying the knowledge and skills to their external task (NEA)
Subject-specific Skills				

Year 7	Year 8	Year 9	Year 10	Year 11
Material Selection and Handling – Choosing and working safely with different materials. Practical Manufacturing Skills – Using tools and machines to make products. Problem Solving – Identifying challenges and finding effective design solutions.	Creative Thinking and Ideation – Generating and developing original design ideas. Model Making and Prototyping – Building physical or digital models to test concepts. Material Selection and Handling – Choosing and working safely with different materials. Practical Manufacturing Skills – Using tools and machines to make products. Evaluation and Testing – Assessing products against criteria and refining designs. Communication – Presenting ideas clearly through drawings, reports, and presentations.	Technical Drawing – Producing detailed and accurate drawings including orthographic and isometric projections. Practical Skills – Using hand tools, machinery, and equipment safely and effectively. Modelling and Prototyping – Building physical or virtual prototypes to test and refine designs. Manufacturing Techniques – Applying joining, shaping, finishing, and assembly methods. Problem-Solving – Identifying issues and adapting designs or processes to overcome them. Communication – Presenting ideas and processes clearly through annotated sketches, reports, and presentations.	Research and Contextual Analysis – Investigating design contexts, user needs, and existing products. Generating Design Ideas – Using brainstorming, sketching, and CAD to develop creative solutions. Computer-Aided Design (CAD) – Creating digital models and technical drawings. Practical Skills – Using hand tools, machinery, and equipment safely and effectively. Modelling and Prototyping – Building physical or virtual prototypes to test and refine designs. Manufacturing Techniques – Applying joining, shaping, finishing, and assembly methods. Evaluation – Testing products against design criteria and user feedback to make improvements. Problem-Solving – Identifying issues and adapting designs or processes to overcome them. Communication – Presenting ideas and processes clearly through annotated sketches, reports, and presentations.	Use all of skills in KS4 to develop own NEA project.
British Values				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**

Democracy: Encouraging teamwork and sharing ideas during the design process. Rule of Law: Following safety rules and guidelines in the workshop. Individual Liberty: Allowing creative freedom and personal expression in their designs. Mutual Respect: Respecting others' opinions and cultural meanings of animals.	Democracy: Collaborating and valuing different ideas during the creative process. Rule of Law: Following health and safety rules while working with tools and materials. Individual Liberty: Expressing personal style and creativity within the design. Mutual Respect: Appreciating the original designer's work and respecting cultural influences. Tolerance: Understanding and valuing diverse design styles and cultural backgrounds.	Democracy: Collaborating and listening to others' ideas to create a product that meets user needs. Rule of Law: Following safety and environmental guidelines during production. Individual Liberty: Making creative choices that reflect personal values about sustainability. Mutual Respect: Respecting the environment and the needs of others, including the user's preferences. Tolerance: Appreciating different perspectives on sustainability and gaming culture.	Democracy: Encouraging collaboration and sharing diverse ideas during the design process. Rule of Law: Following health, safety, and copyright guidelines while creating the product. Individual Liberty: Allowing personal creativity and interpretation of the original design. Mutual Respect: Valuing the cultural significance and originality of the designer's work. Tolerance: Appreciating different design styles and cultural influences behind the clock's inspiration.	Democracy: Involving the user in decision-making and valuing their feedback throughout the design process. Rule of Law: Following rules, safety procedures, and design constraints to ensure the product is safe and appropriate. Individual Liberty: Making independent design choices that reflect both their creativity and the user's needs. Mutual Respect: Listening to and respecting the views, preferences, and requirements of the end user. Tolerance: Understanding and accommodating the diverse needs, backgrounds, and abilities of different users.
Life Skills				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Problem-Solving – Finding creative and practical solutions. Resilience – Learning from mistakes and improving iteration. Independence – Making decisions and taking responsibility. Practical Skills – Safely using tools, materials, and equipment with confidence. Creativity – Thinking imaginatively and developing original ideas. Organisation – Keeping workspaces tidy.	Problem-Solving – Finding creative and practical solutions to design challenges. Communication – Expressing ideas through drawings and discussion. Time Management – Planning and managing tasks. Resilience – Learning from mistakes and improving through testing and iteration. Independence – Making decisions and taking responsibility for their own work.	Problem-Solving Critical Thinking Teamwork Communication Time Management Resilience Independence Creativity Empathy Organisation Adaptability	Problem-Solving Critical Thinking Teamwork Communication Time Management Resilience Independence Creativity Empathy Organisation Adaptability	Problem-Solving Critical Thinking Teamwork Communication Time Management Resilience Independence Creativity Empathy Organisation Adaptability

	Creativity – Thinking imaginatively and developing original ideas. Adaptability – Responding to feedback and adjusting designs or plans when needed.			
Careers				
	Destination presentations and open evening Videos and information that links with guided destinations.	STEM trip – Get Up To Speed trip		Help pupils with applications to colleges and apprenticeships.
Literacy				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Peer assessment Subject-Specific Vocabulary – Using and understanding key D&T terms (e.g. names of equipment and technical words). Speaking and Listening – Communicating ideas clearly in discussions and listening to others' feedback. Following Written Instructions – Understanding and applying step-by-step guides or health and safety rules.	Design annotation Peer assessment Reading for Understanding – Interpreting design briefs, instructions, and technical information. Subject-Specific Vocabulary – Using and understanding key D&T terms (e.g. names of equipment and technical words). Speaking and Listening – Communicating ideas clearly in discussions and listening to others' feedback. Writing to Explain – Describing design processes, material choices, and evaluations in detail.	Design annotation Peer assessment Reading for Understanding Subject-Specific Vocabulary Speaking and Listening Writing to Explain Annotation Skills Justifying Choices Following Written Instructions Questioning and Reflecting Presentation Skills	Annotation Peer assessment Famous designer research Extended written question in exam Design annotation Peer assessment Reading for Understanding Subject-Specific Vocabulary Speaking and Listening Writing to Explain Annotation Skills Justifying Choices Following Written Instructions Questioning and Reflecting Presentation Skills	Independent NEA project work - research specification designing modelling evaluating

	Annotation Skills – Labelling sketches and design ideas with clear, purposeful notes. Justifying Choices – Using written or spoken explanations to support design decisions. Following Written Instructions – Understanding and applying step-by-step guides or health and safety rules. Questioning and Reflecting – Using questions and reflection to improve designs and understand user needs. Presentation Skills – Structuring and delivering clear, confident presentations of design ideas.			
Digital Literacy (to engage confidently with technology, the various digital platforms, and the vast amount of online information which now exists)				
Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Understanding how to collect images from the internet that are the right size and copy and paste.	Understanding how to collect images from the internet that are the right size and copy and paste. Learning to use CAD software – 2D Design to create Cam parts for mirror.	Use of Office 365 and Teams to do research and homework activities. Using CAD Software – creating accurate 2D models using programs like TechSoft 2D Design. Researching online – investigating existing products, materials through reliable websites and digital sources. Presenting work digitally – Producing digital design portfolios, presentations, or mood boards using tools like PowerPoint	Using CAD Software Researching online Presenting work digitally Using CAM equipment Evaluating products online Creating digital prototypes Typing and editing documents Online safety and ethics	Using CAD Software Researching online Presenting work digitally Using CAM equipment Evaluating products online Creating digital prototypes Typing and editing documents Online safety and ethics

Design and technology – KS3 Assessment

Key stage 3: design and technology

Pupils produce projects of work that is broken up into different skill sets, which lead onto key assessment pieces. Each project is assessed on individual pieces of a project, and pupils are given regular feedback and advice to act upon.

Year 7 project: slot together project

Year 7 is a year where new KS3 pupils are introduced to the subject of Design Technology. This year pupils need to learn basic health and safety practices and become familiar to using basic craft tools and machinery. To introduce pupils to these skills all pupils are expected to work on the slot together project. This scheme of work expects pupils to develop their designing skills and modelling experience. These key skills are fundamental skills that are required when pupils get into KS4 at GCSE level, so it is expected that pupils are exposed to this method of designing as early as possible.

- Baseline assessment for four hour making task, done at the beginning of each rotation.
- Pupils will have a completed product made from plywood, which will be assessed and a percentage mark given.

  Pupils have 5 weeks for the DT rotation in year 7. Percentage mark for the slot together project is entered onto the departmental tracker.

Year 8 projects: phone stands and adjustable mirrors

Year 8 is a year where pupils are advancing their subject knowledge and experience in the subject of design technology from year 7. The mirror project challenges pupils to develop a design for an existing project brief and to work with some constricting design criteria. Pupils are expected to practice their craft skills so that they become accustomed to a wider range of tools and machinery so that the products challenge pupils to plan and problem solve in the designing and making of their project.

The project is structured to allow pupils to experience the method of designing products like they would be expected to do during KS4 and GCSE, this process involves research, designing, modelling and prototyping, then leading onto the making of the product.

- Produce an acrylic phone-charging stand to practice key practical skills.
- Evaluation sheet on the phone stand.
- Design sheet will be assessed and percentage mark given.
- Full working scaled model of the final design.
- A completed acrylic mirror for assessment and percentage mark given.

At the end of each 10 week rotation pupils' percentage marks are placed on the departmental tracker to establish the progress the pupils have made in comparison to their peers.

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Design and technology – KS4 Assessment

Assessment KS4

Students must demonstrate the ability to:

- develop their ideas through investigations informed by selecting and critically analysing sources
- apply an understanding of relevant practices in the creative and cultural industries to their work
- refine their ideas as work progresses through experimenting with media, materials, techniques and processes
- record their ideas, observations, insights and independent judgements, visually and through written annotation, using appropriate specialist vocabulary, as work progresses
- use visual language critically as appropriate to their own creative intentions and chosen area(s) of study through effective and safe use of:
- media
- materials
- techniques
- processes
- technologies
- use drawing skills for different needs and purposes, appropriate to context
- realise personal intentions through sustained application of the creative process.

Pupils are then assessed against these four assessment objectives:

- AO1: Develop ideas through investigations, demonstrating critical understanding of sources.
- AO2: Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.
- AO3: Record ideas, observations and insights relevant to intentions as work progresses.
- AO4: Present a personal and meaningful response that realises intentions and demonstrates understanding of visual language.

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Key stage 4: design and technology (AQA) GCSE

The course is divided into two main components:
1. Written Exam (50%)
Duration: 2 hours
Marks: 100
Assesses: Core technical principles, specialist technical principles, and designing & making principles
2. NEA – Non-Exam Assessment (50%)
Design and Make Project
Duration: Approx. 30–35 hours
Marks: 100
Released Theme: Set by the exam board in June of Year 10
Assesses: Research, design, development, making, testing, and evaluation

Year 9 projects: mechanical lamp and headphone stands

Year 9 is a foundation year for pupils to help them prepare for the start of their GCSE course in Y10 and Y11. Pupils will learn about the key topics that are fundamental to the subject of design technology. The topics include categories of materials, which will enrich pupils' awareness of the materials that they can work with during the year. This will lead onto pupils using this knowledge to developing their designing skills, which were started in Y8, though the Y9 SOW will enhance the skills by widening the research and development of the project.

Other areas that pupils will focus upon is the theoretical elements of the course which cover mechanisms and structural forces, these topics are fundamental elements of the course which will enhance pupils' understanding of how everyday products work and designed.

- Assessed piece of work - working mechanical lamp (basic wood working skills project)
- Assessed piece of work – design ideas of headphone stand.
- Assessed piece of work – scaled prototype model of the speaker we will make.
- Completed circuit – systems and control theory work
- Assessed piece of work – manufacture of the headphone stand.
- Topic tests on mechanisms and forces / common materials / material properties / technical drawings
- Final year exam.

Year 10 project: designer inspired CAD / CAM clock project

Year 10 is the first year of the GCSE course in design technology. Pupils are expected to use the knowledge and experience from the past three years to support them through an advanced design and make project that is specifically designed to give all pupils experience of how to project manage a project for the following year's NEA project set by the exam board. Pupils will spend the large majority of the year project managing the clock project, which will expect pupils to do some detailed research into famous designers and styles, product research and a client review, which leads onto the designing and prototyping of their clock designs.

Another part of the SOW in year 10 includes pupils being expected to cover a majority of the theory elements of the written exam, the topics that are covered include; environment, sustainability, modern materials, new and emerging technologies and energy generation.

- Assessed piece of work - existing products research
- Assessed piece of work - client profile
- Assessed piece of work - design specification
- Assessed piece of work - design ideas
- Assessed piece of work - mini models and final model
- Topic tests on - Industry and enterprise / tech' push, market pull / planned obsolescence / ergonomics & anthropometrics / new and emerging technologies
- Final year exam.

Year 11 project: NEA controlled assessment

Year 11 is the final year of the course, which involves pupils, taking part in the non-external assessment (NEA), which is worth 50% of the GCSE course. The NEA has three set contexts from the exam board who give written contexts that pupils can choose from. The NEA should take approximately 35 hours to complete and include work in six different sections, all of which pupils will have experience of completing before in Y9 and Y10. The project is assessed on the following areas; research, specification, designing, modelling, making and evaluation. The majority of all work should and is done is lesson time, though some necessary homework will contribute to the grade of the NEA.

Once the NEA is completed pupils will refocus on the theoretical elements of the course which have been covered back in both KS3 and KS4, the final weeks of Y11 will be spent on diagnosing the weaknesses of the pupils so that structured learning and revision can be delivered in lessons and as revision homework tasks.

- Project introduction
- Existing Products
- Client profile
- Specification
- Design drawings
- CAD development drawings
- Mini models
- Developed models
- Final model

- Manufacturing
- Choices of materials
- Photos of making
- Working Drawing & parts list
- Evaluation sheets

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