Product Design
Key Stage 4 Framework for Learning
Year 11 2016-2017: I am Creative, Successful and Happy

Syllabus:
AQA GCSE Product Design
Specification number 4557

Autumn 1	
Knowledge	During this term students will need to ensure that they have completed all remaining tasks for their Controlled Assessment. Students will have finished their coursework by Christmas, ensuring they have enough time to enhance their subject knowledge and QWC skills. **These tasks are worth 60% of students final GCSE grading and are to be completed under controlled assessment conditions.** Students controlled assessment tasks are taken from the AQA examining body and will be based on a given topic/scenario and design task. Candidates should undertake a single design and make activity which is selected from a range of board-set tasks. Candidates should submit a 3-dimensional outcome (Practical) and a concise design folder and/or appropriate ICT evidence. The design folder should consist of approximately 20 pages of A3 paper or equivalent A4 paper or the ICT equivalent. It is expected that candidates should spend approximately 45 hours on this activity.
Skills	Students use an exam board given context and brief to solve a design problem. The CA task will involve students independent and skillfully following the design process to research and investigate, design, develop designs, manufacture and test and evaluate ideas. Design and Technology encourages students to be inspired, moved and challenged by following a broad, coherent, satisfying and worthwhile course of study and gain an insight into related sectors, such as manufacturing and engineering. It prepares students to make informed decisions about further learning opportunities and career choices. GCSE specifications in design and technology enable students to: •Actively engage in the processes of design and technology to develop as effective and independent learners make decisions, consider sustainability and combine skills with knowledge and understanding in order to design and make quality products •Explore ways in which aesthetic, technical, economic, environmental, ethical and social dimensions interact to shape designing and making • analyse existing products and produce practical solutions to needs, wants and opportunities, recognising their impact on quality of life •Develop decision-making skills through individual and collaborative working understand that designing and making reflect and influence cultures and societies, and that products have an impact on lifestyle •Develop skills of creativity and critical analysis through making links between the principles of good design, existing solutions and technological knowledge.
Assessment	Controlled Assessment tasks are to be marked in line with the examining body's marking criterion which is separated into 5 criterions; •Investigating the design context. •Design and Development (Including Modeling) •Making •Testing and Evaluating •Communication Students work will be completed under controlled assessment conditions and where feedback can be provided to students this will be to enable them to develop strengths in these key areas. Classwork and Exam Practice/Preparation Summative: Students key pieces of assessed work will include Research, Design, Make and Evaluative pieces of work. Also IA's will help to form assessed work. Formative: Subject teachers to uses AfL to formatively assess students. Assessment will also fall in line with the schools marking policy where feedback should be given to help improve students' performance.

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Reward & enrichment	**Rewards** Classroom rewards and opportunities will follow CHS reward criteria for routine points, star of the lesson etc. Individual rewards could be used as incentives to engage and enthuse students further in lessons. At the end of each half term subject commendations will be awarded to students from each Technology group. Departmental rewards system will hope to develop students reward opportunities in Year 7. **Enrichment** Enrichment opportunities might come in the form of wider experiences or further research opportunities. Guest speakers or links to industry experts could be used to help develop enrichment opportunities for students.
Character	 There will be a particular focus on the following qualities of success during the term: • **Practice** - Students will develop this quality as they undertake a series of short focused tasks relating to the basic skills needed for the manufacture of products using CAD/CAM techniques. • **Resiliency** - Students will develop this quality as they will have to work for a number of hours on their project. They will need to take criticism of their work from others and use it in a constructive way. They will have to show resiliency to 'keep going' and create the most effective product. As part of the tasks being completed in lessons there are plenty of opportunities for staff to link the learning in lessons to the CHS Qualities of Success. Qualities of Success: • **Practice** - Students will develop this quality as they undertake a series of short focused tasks relating to the basic skills needed for the manufacture of products using CAD/CAM techniques. • **Creativity** - Students will develop this quality as they design a product, 3D Souvenir. Creative problem solving, and use of ICT to present work, communicates ideas and research will also be challenged. • **Resiliency** - Students will develop this quality as they will have to work for a number of hours on their project. They will need to take criticism of their work from others and use it in a constructive way. They will have to show resiliency to 'keep going' and create the most effective product. • **Empathy –** Empathy can be displayed through the use of new technologies and learning strategies, as learners may at first struggle with concepts and problem solving tasks. Empathy for others will be actively encouraged. • **Reflection –** Evaluation tasks, reviews of work, analysis and progress checks will lend themselves to students developing reflection skills throughout this unit of work. • **Curiosity –** Research and investigation, trying and experimenting with new digital/creative media will help students to test their curiosity skills during this unit. • **Optimism –** Teacher feedback, peer assessment and self-assessment tasks will help students aspire further with work completed in lessons as well as the encouragement to develop skills and techniques used throughout this unit of work. • **Motivation –** Students can use motivation to support and encourage one another, this can be done through verbal communication, assessment tasks, peer assessment tasks, teacher feedback, as well as the feedback of outside sources, where possible. • **Responsibility –** Students will be taught about responsible use of ICT, Facilities, working to meet deadlines, and being responsible for their own work throughout the unit of work. *Where tasks in lessons can be adapted and modified to suit the needs of the above QofS or CV these should be made by the classroom teacher and included in short term planning evidence.*

Autumn 2

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Reward & enrichment	**Rewards** Classroom rewards and opportunities will follow CHS reward criteria for routine points, star of the lesson etc. Individual rewards could be used as incentives to engage and enthuse students further in lessons. At the end of each half term subject commendations will be awarded to students from each Technology group. Departmental rewards system will hope to develop students reward opportunities in Year 7. **Enrichment** Enrichment opportunities might come in the form of wider experiences or further research opportunities. Guest speakers or links to industry experts could be used to help develop enrichment opportunities for students.
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	• **Practice** - Students will develop this quality as they undertake a series of short focused tasks relating to the basic skills needed for the manufacture of products using CAD/CAM techniques. • **Resiliency** - Students will develop this quality as they will have to work for a number of hours on their project. They will need to take criticism of their work from others and use it in a constructive way. They will have to show resiliency to 'keep going' and create the most effective product. As part of the tasks being completed in lessons there are plenty of opportunities for staff to link the learning in lessons to the CHS Qualities of Success. Qualities of Success: • **Practice** - Students will develop this quality as they undertake a series of short focused tasks relating to the basic skills needed for the manufacture of products using CAD/CAM techniques. • **Creativity** - Students will develop this quality as they design a product, 3D Souvenir. Creative problem solving, and use of ICT to present work, communicates ideas and research will also be challenged. • **Resiliency** - Students will develop this quality as they will have to work for a number of hours on their project. They will need to take criticism of their work from others and use it in a constructive way. They will have to show resiliency to 'keep going' and create the most effective product. • **Empathy –** Empathy can be displayed through the use of new technologies and learning strategies, as learners may at first struggle with concepts and problem solving tasks. Empathy for others will be actively encouraged. • **Reflection –** Evaluation tasks, reviews of work, analysis and progress checks will lend themselves to students developing reflection skills throughout this unit of work. • **Curiosity –** Research and investigation, trying and experimenting with new digital/creative media will help students to test their curiosity skills during this unit. • **Optimism –** Teacher feedback, peer assessment and self-assessment tasks will help students aspire further with work completed in lessons as well as the encouragement to develop skills and techniques used throughout this unit of work. • **Motivation –** Students can use motivation to support and encourage one another, this can be done through verbal communication, assessment tasks, peer assessment tasks, teacher feedback, as well as the feedback of outside sources, where possible. • **Responsibility –** Students will be taught about responsible use of ICT, Facilities, working to meet deadlines, and being responsible for their own work throughout the unit of work. *Where tasks in lessons can be adapted and modified to suit the needs of the above QofS or CV these should be made by the classroom teacher and included in short term planning evidence.*
Spring 1	
Knowledge	During this half term students will be focusing on enhancing their subject knowledge, design skills and QWC skills. Below are the topics the students will learn during Spring 1: Section A of the exam is based around a particular context that students are allowed to study for. To ensure students are fully prepared for this, we have compiled an extensive range of topics that students can prepare for. Classification and working properties of materials: •Paper and Card •Timbers •Ferrous and Non Ferrous metals •Plastics •Ceramics •Textiles •Food •New Materials •Combining Materials •Manipulating Materials Evolution of Product Design How products evolve over time because of developments in: •Ideas •Materials •Manufacturing processes and technologies Also because of •Social •Political

	•Cultural and •Environmental changes Major design movements since 1900 •Arts & Crafts Movement •Art Nouveau •Art Deco •Bauhaus •Modernism •De Stijl •Memphis •Post Modernism. •Cultural influences •Manufacturing industries •Market Pull and Technology Push
Skills	**Section B.** Throughout the process of preparation for Section B as well as going through the subject content examination techniques will be delivered for technology examinations. Preparations to include: • Extended writing • Competing tables and graphs • Descriptive writing • Revision techniques • Reading questions • Sketching and designing **Section A preparation for students to be taught and delivered.** Students should know how to be able to: • Create Specifications • Design to a given context • Develop a product • Annotate ideas • Shading and rendering techniques • Methods of manufacture • Finishing techniques • Evaluation techniques
Assessment	Examination questions and sample questions will be used to help familiarize students with the examination format and the methods of marking used by examiners. Students will unpick the mark schemes as well as possible responses to questions to structure the answers to the marks available. Teachers will also mark and assess work in this time in line with CHS marking policies. Peer Assessment opportunities and self-assessment tasks will help students with the assessment protocols for examinations. **Assessment tasks for this half term will solely focus on practice exam questions and marked in line with exam mark schemes which will help support the students prior to the final exam.**
Reward & enrichment	**Rewards** Classroom rewards and opportunities will follow CHS reward criteria for routine points, star of the lesson etc. Individual rewards could be used as incentives to engage and enthuse students further in lessons. At the end of each half term subject commendations will be awarded to students from each Technology group. Departmental rewards system will hope to develop students reward opportunities in Year 7. **Enrichment** Enrichment opportunities might come in the form of wider experiences or further research opportunities. Guest speakers or links to industry experts could be used to help develop enrichment opportunities for students.

Character	 There will be a particular focus on the following qualities of success during the term: • **Creativity** - Students will develop this quality during revision sessions. Creative problem solving, and use of ICT to present work, communicates ideas and research will also be challenged. • **Curiosity –** Research and investigation, trying and experimenting with new digital/creative media will help students to test their curiosity skills during this unit. As part of the tasks being completed in lessons there are plenty of opportunities for staff to link the learning in lessons to the CHS Qualities of Success. Qualities of Success: • **Practice** - Students will develop this quality as they undertake a series of short focused tasks relating to the basic skills needed for the manufacture of products using CAD/CAM techniques. • **Creativity** - Students will develop this quality as they design a product, 3D Souvenir. Creative problem solving, and use of ICT to present work, communicates ideas and research will also be challenged. • **Resiliency** - Students will develop this quality as they will have to work for a number of hours on their project. They will need to take criticism of their work from others and use it in a constructive way. They will have to show resiliency to 'keep going' and create the most effective product. • **Empathy –** Empathy can be displayed through the use of new technologies and learning strategies, as learners may at first struggle with concepts and problem solving tasks. Empathy for others will be actively encouraged. • **Reflection –** Evaluation tasks, reviews of work, analysis and progress checks will lend themselves to students developing reflection skills throughout this unit of work. • **Curiosity –** Research and investigation, trying and experimenting with new digital/creative media will help students to test their curiosity skills during this unit. • **Optimism –** Teacher feedback, peer assessment and self-assessment tasks will help students aspire further with work completed in lessons as well as the encouragement to develop skills and techniques used throughout this unit of work. • **Motivation –** Students can use motivation to support and encourage one another, this can be done through verbal communication, assessment tasks, peer assessment tasks, teacher feedback, as well as the feedback of outside sources, where possible. • **Responsibility –** Students will be taught about responsible use of ICT, Facilities, working to meet deadlines, and being responsible for their own work throughout the unit of work. *Where tasks in lessons can be adapted and modified to suit the needs of the above QofS or CV these should be made by the classroom teacher and included in short term planning evidence.*
Spring 2	
Knowledge	During this half term students will be focusing on enhancing their subject knowledge, design skills and QWC skills. Below are the topics the students will learn during Spring 2 Packaging Variety of materials and processes used to package products and the importance of using packaging to protect and inform customers. Impact upon the environment: •Social responsibility •Sustainability •6 R's Functions of packaging •Protect •Inform •Contain •Transport

	•Preserve •Display Need for product labeling Common symbols used to indicate: •Hazards •Storage •Handling •Maintenance •Disposal •Design protection. Product marketing •Power of branding and advertising •Effect upon different consumer groups Design in the Human Context Human factors •Inclusive and Exclusive designs •Cultural Issues •Anthropometrics •Ergonomics •Disabilities needs •Elderly needs •Religious Needs •Needs of the 5th to 95th percentile •Impact of colour (Warnings) Efficient manufacturing systems •Layout of materials •Equipment and controls •working triangles •Production lines •Assembly lines •Moral and legal responsibility Quality control and assurance •Commercial methods used to improve quality assurance •Quality circles •Team working, •BS EN ISO 9000 •Flow charts •Production plans •Identifying critical points •QA/QC
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Summer 1	
Knowledge	During this half term students will be focusing on enhancing their subject knowledge, design skills and QWC skills. Below are the topics the students will learn during Summer 1 **Ethical, Environmental and Sustainability Issues** • Fair trade • Product miles • Carbon footprint • Product disposal • 6 R Principles: re-use, recycle, repair, reduce, rethink, refuse, etc. Recycling and/or Reusing materials or products • Material identification • Material separation • Collection • Processing • Energy costs • Wastage. **Consumer issues** • Consumer groups • Pressure groups • Work of standards agencies (BSI, ISO) • Legislation • Protecting consumers **Processes and Manufacture** • Industrial and Commercial Practice • Methods of production Scales of Production • One off • Batch • Mass • Continuous • Just in Time (JIT) • Manufacturing systems • Commercial manufacturing **Use of ICT (Information and Communication Technology)** Understand how ICT facilitates a wide range of manufacturing functions: • CAD/CAM • CNC • Just in time (JIT) • Video conferencing • Software sharing • Stock control • Data transfer and remote manufacturing

Skills	**Section B.** Throughout the process of preparation for Section B as well as going through the subject content examination techniques will be delivered for technology examinations. Preparations to include: • Extended writing • Competing tables and graphs • Descriptive writing • Revision techniques • Reading questions • Sketching and designing **Section A preparation for students to be taught and delivered.** Students should know how to be able to: • Create Specifications • Design to a given context • Develop a product • Annotate ideas • Shading and rendering techniques • Methods of manufacture • Finishing techniques • Evaluation techniques
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