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|  | **Year 11** | **Year 10** | **Year 9** | **Year 8** | **Year 7** |
|  | ***Master*** | ***Secure*** | ***Embed*** | ***Develop*** | ***Introduce*** |
| **Aims** | Aim – secure skills that are required for independent learning and development. **Having the ability to recognise areas of strength (developing further efficiency) and weakness in their own work** (critical thinking, creative responses).  Hospitality  **Aim -** Students can safely and independently use range of generic and transferable skills in relation to the cooking of food items and adapt these to suit need, taste, opportunity, and time.  **Aim -** Students able to give detailed, explained knowledge using subject terminology to a variety of subject specific questions.  **Aim-** Students have skills needed to independently organise project-based research, development, and presentation within set time frames.  Engineering  **Aim -** Students able to give detailed, explained knowledge using subject terminology to a variety of subject specific questions.  **Aim -** Honed Accurate, safe practical skills to produce products with range of materials & processes.  **Aim -** Students have an excellent understanding of the design process and can compare engineered products to specification accurately to solve engineering problems (critical thinking)  **Aim-** Students have skills needed to independently organise project-based research, development, and presentation within set time frames.  Design and Technology (2020)  Aim –  Aim -  Aim - | Aim - S**ecuring skills that are required for independent learning and development.** Experience the fundamental skills needed to work alongside other professionals.  Hospitality  **Aim -** Secure the ability to independently use range of generic and transferable skills in relation to the cooking of food items.  **Aim -** The ability to solve problems (creative thinking) when cooking food items and adapt dishes if needed.  **Aim -** Acquire the skills needed when working on project-based research, development, and presentation.  **Aim –** students will be developing an ongoing ability to recall, select and communicate sound knowledge and understanding of aspects of the hospitality sector.  Engineering  **Aim -** Securing creativity in design skills and demonstrating clarity in engineering drawing skills.  **Aim -** The ability to solve problems (creative thinking) when working within a design brief or to a specification.  **Aim -** Using knowledge learnt in KS3 technology to manufacture products to meet user needs accurately and effectively  **Aim -** Acquire the skills needed when working on project-based research, development, and presentation.  **Aim -** Learners will develop an ongoing ability to recall, select and communicate sound knowledge and understanding of aspects of the engineering sector.  Design and Technology (2019)  Aim –  Aim -  Aim - | Aim - **To review, retain and become more technically competent** when demonstrating knowledge and skills learnt in previous years 8/7 independently.  Aim - To be able to Identify and control risks in a workshop and kitchen to keep the DT environment safe for all. (all lessons).  Aim - Present projects and/or elements of study in a format that **replicates real-life academic application (GCSE),** promote creative thinking, iterative design processes that are theoretically and practically **integral** for future success. (NC, WJEC)  Aim - Give pupils opportunity to select from and use a wider, more complex range of materials, components, and ingredients.  Aim – Become competent when demonstrating a range of cooking/engineering processes for example, selecting, and preparing ingredients, using utensils, tools, electrical equipment, and machinery safely.  Aim - Increased emphasis of presentation and finishing techniques when assessing final outcomes (Final rotation product, End of lesson food item) **independently, supported by teacher intervention.**  Aim **– Focus on some WJEC specification core ideas/tasks/principles.** commonalities, intrinsic connections within the design and technology industries (engineering, Hospitality, product design ETC) and the **wider environmental responsibilities of DT subjects** via Enrichment nine programme. | Aim - **To develop basic skills (Y7) and widen the range of known Design and Technology skills** with added complexity across subject areas that include: Engineering, DT, Food technology.  Aim - To be able to Identify and control risks in a workshop and kitchen to keep the DT environment safe for all. (all lessons).  Aim - To present projects that have a real-life application, can be demonstrated easily in a historical and modern context, promote creative thinking, iterative design processes that are theoretically and practically **important** for future study (NC, WJEC)  Aim - Increased emphasis of presentation and finishing techniques when assessing final outcomes (Final rotation product, End of lesson food item) **supported by teacher intervention.**  Aim – Continual promotion of independence and reflective learning to develop minds that can retain key knowledge. Using this knowledge to critique, evaluate and test their ideas.  Aim - Use independence to demonstrate a range of cooking/engineering processes for example, selecting and preparing ingredients, using utensils, tools, electrical equipment, and machinery safely.  Aim - Breaking down misconceptions about job roles, commonalities, intrinsic connections within the design and technology industries (engineering, Hospitality, product design ETC) and the **societal responsibilities of DT subjects** via Enrichment nine programme. | Aim - **During year 7 students will be introduced to basic Design and Technology skills** across subject areas that include: Engineering, DT, Food technology.  Aim - To be able to Identify and control risks in a workshop and kitchen to keep the DT environment safe for all. (all lessons).  Aim - To present projects that have a real-life application, can be demonstrated easily in a historical and modern context, promote creative thinking that are theoretically and practically **informative** for future study (NC, WJEC)  Aim - Instilling a love of cooking and the design process linked to principles of nutrition, healthy eating, and iterative design.  Aim - Exploring a range cooking/engineering processes for example, selecting and preparing ingredients, using utensils and electrical equipment and machinery.  Aim - Promote independence and reflective learning to develop minds that can retain key knowledge. Using this knowledge to critique, evaluate and test their ideas.  Aim - Breaking down misconceptions about **job roles, commonalities and the intrinsic connections** within the design and technology industries (engineering, Hospitality, product design ETC) via Enrichment nine programme. |
| **Core knowledge/key concepts** | In Y11 students are now able to work in a far more independent way. Most if not all students should now be able to critically think about their decision making and approach to work set when working towards completing an exam board given brief or specification.  The projects set will give students the opportunity to showcase their understanding of the core knowledge and concepts set out by the selected exam board. Moreover, independent students should now understand how to refine and modify their ideas, select appropriate techniques and materials with teacher led direction rather than teacher intervention.  . A detailed explanation of the core knowledge and concepts can be found in the following places:  AQA DT – P9 – P36  <https://filestore.aqa.org.uk/resources/design-and-technology/specifications/AQA-8552-SP-2017.PDF>  WJEC Hospitality and catering -  <https://www.wjec.co.uk/media/55bnplb2/wjec-level-1-2-award-in-hospitality-and-catering-spec-a-from-2016-e-1.pdf>  WJEC Engineering -  <https://www.wjec.co.uk/media/1okiehrc/wjec-level-1-2-award-in-engineering-spec-from-2013-e-301019.pdf> | DT at KS4 becomes three separate areas of study (2020-21). Students are now expected to be securing practical and knowledge retention skills, leading to increased independence that will allow them to critically think about the decisions they have made.  In all Y10 design and technology subjects students are expected to add further depth to knowledge learnt in KS3 this will then allow them to make effective design choices when working on NEA projects and sitting any exams (June series) in Y10/11. A detailed explanation of the core knowledge and concepts can be found in the following places:  AQA DT – P9 – P36  <https://filestore.aqa.org.uk/resources/design-and-technology/specifications/AQA-8552-SP-2017.PDF>  WJEC Hospitality and catering -  <https://www.wjec.co.uk/media/55bnplb2/wjec-level-1-2-award-in-hospitality-and-catering-spec-a-from-2016-e-1.pdf>  WJEC Engineering -  <https://www.wjec.co.uk/media/1okiehrc/wjec-level-1-2-award-in-engineering-spec-from-2013-e-301019.pdf> | DT at Y9 aims to review, retain, and develop more technically competent learners enabling them to make the jump for KS3 to KS4. The rehearsal of the knowledge and skills learnt in this year group are tailored around projects and/or elements of study in a format that replicates real-life academic application (GCSE, BTEC) Design skills and theoretical knowledge are once again linked to the DT national curriculum (2013) and GCSE/WJEC specifications. Specific examples of core knowledge and concepts:  - Analysis of what is needed to produce a design specification which can be used to inform design ideas.  - Using design skills and communication to represent ideas clearly. Use of annotation to present design in a clear way.  - Understand the different ways which we use CAD/CAM to create products in engineering and the wider context. Using CAD software.  - Materials analysis and properties of Metals. Understand the difference between ferrous and non-ferrous metals.  - Metal forming techniques and processes. Casting Forging, Extrusion, Rolling.  - Confidently using a variety of tools, machines, equipment, and utensils to create engineered/cooked products safely and independently.  - Understanding why a range of finishing techniques improve the quality of engineered products.  - Understanding the different environmental issues in the hospitality industry how this informs menu choice and food consumed. Sustainable farming, fair trade, food miles.  - Hospitality job roles and responsibilities operation of the kitchen and front of house.  - Understanding and Comparing the nutritional needs of specific groups of people in society to help inform food choices.  - Understanding how intolerances and allergies can affect the food choices of others and how to spot the signs of these.  - Independent planning when creating items of food. What is Sequencing? Mise en place, Cooking/Cooling times, Hot holding and Serving. | DT at Y8 focuses on introducing some new skills but developing many of the skills learnt in Y7. As with previous years of study health and safety is also an integral part of building up practical skills and tool/utensils and equipment identification. Design skills and theoretical knowledge that is linked to the DT national curriculum (2013) and GCSE/WJEC specifications is also introduced in a simplistic way. Specific examples of core knowledge and concepts:  - Understanding the role of prototyping when designing new products to test and evaluate product performance.  - How to analyse existing products to look for areas of weakness and strength to inform future design.  - Materials analysis and properties of wood. What are softwoods and hardwoods? Origins of.  - Taking into consideration the ecological and social footprint of materials used in engineering. Sustainability.  - Mathematical conversion MM to CMs, differences between these two types of measurement scales.  - To develop basic design communication skills learnt in Y7: Quick sketching, design development, Rendering and annotation.  - To develop understanding Isometric and orthographic engineering drawing principles used in industry to communicate plans effectively.  - What production aids are and how they can be to increase productivity in industry. Jigs templates etc.  - To use a variety of tools, machines, equipment, and utensils to create engineered/cooked products safely and independently.  - Cultural staple foods worldwide, how these are produced and how these have been used to shape cuisines.  - Functions of nutrients in the human body. (Macro and Micro)  - Knowledge of the different types of businesses in the Hospitality and Catering industry.  - How social media affects the Hospitality and Catering industry and consumer choice.  - Understanding of what factors make a Hospitality and Catering business successful. | DT at Y7 focuses on introducing student to what are likely to be new skills. Health and safety are also an integral part of building up practical skills and tool/utensils and equipment identification. Design skills and theoretical knowledge that is linked to the DT national curriculum (2013) and GCSE/WJEC specifications is also introduced in a simplistic way. Specific examples of core knowledge and concepts:  - Gaining an understanding of how manufacturing methods have changed historically. Scales of production.  - Knowledge of aerodynamic principles and how this principle can affect several different factors in relation to speed, efficiency, and product cost.  - Materials analysis and properties of plastics. What are thermo/thermoset plastics? origins of.  - Mathematical conversion MM to CMs, differences between these two types of measurement scales.  - To introduce/develop basic design communication skills quick sketching, design development, Rendering and annotation.  - To understand Isometric and orthographic engineering drawing principles used in industry to communicate plans effectively.  - An introduction and practice of a variety skills reliant on the use of tools, machines, equipment, and utensils to create engineered/cooked products safely.  - Understanding the importance of nutrition and be able to describe functions of nutrients in the human body.  - Exploring different cooking methods in the kitchen and investigating their impact on nutrients. |
| **Skills and knowledge developed** | Again, across all design and technology subjects’ students are expected to further refine explore and rehearse ideas and concepts learnt in Y10.  The additional task of an NEA project means students must apply much deeper thinking, enquiry, analysis and a clear sense of aims and targets in order to ensure that the they not only respond in a meaningful way but select the most appropriate methods, techniques and materials to succeed.  **Assessment opportunities**  Individual exam/coursework scores/marks to be tracked and recorded to inform reteach lessons on a group by group basis, as well as individual targets.  ***\*Refer to departmental assessment plan.*** | Students in Y10 will develop an understanding of the course content for Engineering, Hospitality and DT (2019) and how the 5 defined categories of the iterative design process learnt in KS3 interlinks with what is expected at KS4.  In hospitality students will develop knowledge around five (5) Learning outcomes:  - LO1 Understand the environment in which hospitality and catering providers operate.  - LO2 Understand how hospitality and catering provisions operate.  - LO3 Understand how hospitality and catering provision meets health and safety requirements.  - LO4 Know how food can cause ill health.  - LO5 Be able to propose a hospitality and catering provision to meet specific requirements.  Further knowledge and skills will be developed with a much closer aligned reference to exam board specification. rehearsal of previous knowledge learnt in KS3 supported by knowledge within exam board specifications will become a common feature of independent study during set tasks.  **Assessment opportunities**  Individual exam/coursework scores/marks to be tracked and recorded to inform reteach lessons on a group by group basis, as well as individual targets.  ***\*Refer to departmental assessment plan.*** | The five defined categories that are taught within Y7 and Y8; Design communication, Drawing/planning skills, DT theory (ENG/HOS including key subject vocabulary), Practical making skills, Critical thinking, Evaluation) remain steadfast concepts in Y9. However, there is more emphasis on independence, opportunity, and purpose of task.  Projects/elements are delivered in a way which to mimic GCSE/BTEC style format. Students must now start to consider how each of the 5 defined categories interact with each other as part of the iterative design process during a project driven by deadlines, independence, and opportunity.  Assessment is carried out with a start and endpoint exam that assesses knowledge from across the KS3 curricula (dependent on rotation) more time is spent on live marking as a means of tracking progress and achievement, again to enable independence and familiarise students with the GCSE/BTEC approach.  **Assessment opportunities**  individual exam scores to be tracked and recorded to inform reteach lessons on a group by group basis. The historical data can then be used to form effective strategies when targeting areas of improvement for students at GCSE/BTEC level if option to take subject is exercised.  1. Baseline exam - Covering a wide range **principles and concepts from Y7/8.**  2. Live marking – continually assess student progress, **looking at the body of work** to inform overall grade.  3. Recap exam - Covering a wide range **principles and concepts from KS3 7,8 and 9.** | Further skills introduced and developed throughout Y8 are largely an extension of those begun in Y7 and indeed could be seen as an extension of Y7 or that Y7/Y8 be (in terms of approach to key skills/ knowledge) a 2 year programme of study.  Many of the practical skills/principles that are introduced in Y8 remain the same or share similarity with those at Y7 continuing a process of reflection, practice, retention. However, as stated “are structured in a way in which complexity of the task and/or presentation of outcome is of a higher difficulty to achieve”. This ensures greater presentation or final accuracy of outcome making skills more pronounced.  New theoretical knowledge is introduced, some of which builds further complexity into topics studied in Y7 (nutrition, historical vs modern manufacturing, material properties). Additional theory knowledge is added to curriculum that aims to widen pupils understanding of different Design and Technology concepts and Key vocabulary (Engineering and Hospitality) ensuring continual development.  Assessment is carried out in the same way as Y7 with a start, mid and endpoint to highlight areas of strength and weakness on a group by group basis.  **Assessment opportunities**  Individual exam scores to be tracked and recorded to inform reteach lessons on a group by group basis.  1. Baseline exam - Covering some principles and **recently taught concepts from Y7/8.**  2. Reflection exam – Covering principles and **recently taught concepts in Y8 only.**  3. Recap exam – Practical outcome and evaluation assessment.  4.Live marking **– Continually during project.** | The core skills that run through the Design and Technology curriculum are structured in a way in which complexity of the task and/or presentation of outcome is of a higher difficulty to achieve in each year group. Assessments are made at a start, mid and endpoint to highlight areas of strength and weakness on a group by group basis, which in turn, links to homework tasks. Although there are many iterations of the skills/principles that are introduced in Y7 Design and Technology across both Engineering and Hospitality, they can be defined using the following 5 categories:  - Design communication  - Drawing/planning skills  - DT theory (ENG/HO key Vcb)  - Practical making skills  - Critical thinking (Evaluation)  The above categories and broader aspects of them form the iterative design process. These principles are taught and encouraged throughout the Design and Technology curricula the iterative design process ensures students are self and peer reflective of their own and others work. Creating an honest and co-operative environment enabling students to think about the different ways they could develop skills to achieve more significant outcomes and retain knowledge.  **Assessment opportunities**  Individual exam scores to be tracked and recorded to inform reteach lessons on a group by group basis.  1. Baseline exam – Covering **basic DT knowledge** (dependent on rotation)  2. Reflection exam – Covering principles and **recently taught concepts in Y7 only.**  3. Recap exam – Covering all **principles and concepts in Y7.**  4. Live marking – Continually during project. |
| **Wider curriculum links to CC/SMSC/PD and CEIAG** | KS4 -   * Scientific properties of materials (Material sciences, Chemistry) * Life cycle assessment and recycling (science) * Area and volume (Mathematics, Physics) * Handling data, marking out and mat quantities (mathematics) * Ethical & sustainable issues (History, Geography, SMSC) * Product designing to meet consumer needs. (Sociology, Product) * Literacy in analysis of existing products/own work (English) * Career options & progression routes (further education) * Creativity in engineering designs. (Art and Design) * Use of digital media to create CAD work/presentations (ICT) * Business profits, net, and gross incomes (Business, mathematics) * Operation of hospitality businesses (Business) * Developing a personal voice in response to opinions and ideas. * Understanding the importance of DT subjects within society. * Developing an enquiring and questioning mindset. * Trips to industry sites outside of Stocksbridge. * Demonstrating initiative, self- motivation and resilience. * Understanding cultural differences, consumer choice. (RE) | | KS3   * Scientific properties of materials (Material sciences, Chemistry) * Life cycle assessment and recycling (science) * Marking out and measurements (mathematics) * Historical Vs Modern production methods (History) * Ethical & sustainable issues (History, Geography, SMSC) * Product designing to meet consumer needs. (Sociology, Product) * Literacy in analysis of existing products/own work (English) * Career options & progression routes (further education) * Creativity in engineering designs. (Art and Design) * Use of digital media to create CAD work/presentations (ICT) * Operation of hospitality businesses (Business) * Understanding teamwork and responsibilities * Developing a personal voice in response to opinions and ideas. * Understanding the importance of DT subjects within society. * Developing an enquiring and questioning mindset. * Trips to industry sites outside of Stocksbridge. (Enrichment nine) * Demonstrating initiative, self- motivation and resilience. * Understanding cultural differences, food choice, world problems (RE) | | |

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|  | **Year 11** | **Year 10** |
|  | ***Master/Secure*** | ***Embed/Develop*** |
| **Aims** | Aim – secure skills that are required for independent learning and development. Having the ability to recognise areas of strength (developing further efficiency) and weakness in their own work (critical thinking, creative responses).  Hospitality  Aim - Students can safely and independently use range of generic and transferable skills in relation to the cooking of food items and adapt these to suit need, taste, opportunity, and time.  Aim - Students able to give detailed, explained knowledge using subject terminology to a variety of subject specific questions.  Aim- Students have skills needed to independently organise project-based research, development, and presentation within set time frames.  Engineering  Aim - Students able to give detailed, explained knowledge using subject terminology to a variety of subject specific questions.  Aim - Honed Accurate, safe practical skills to produce products with range of materials & processes.  Aim - Students have an excellent understanding of the design process and can compare engineered products to specification accurately to solve engineering problems (critical thinking)  Aim- Students have skills needed to independently organise project-based research, development, and presentation within set time frames.  Aims Design and Technology (2020)  Aim –  Aim -  Aim - | Aim - Securing skills that are required for independent learning and development. Experience the fundamental skills needed to work alongside other professionals.  Hospitality  Aim - Secure the ability to independently use range of generic and transferable skills in relation to the cooking of food items.  Aim - The ability to solve problems (creative thinking) when cooking food items and adapt dishes if needed.  Aim - Acquire the skills needed when working on project-based research, development, and presentation.  Aim – students will be developing an ongoing ability to recall, select and communicate sound knowledge and understanding of aspects of the hospitality sector.  Engineering  Aim - Securing creativity in design skills and demonstrating clarity in engineering drawing skills.  Aim - The ability to solve problems (creative thinking) when working within a design brief or to a specification.  Aim - Using knowledge learnt in KS3 technology to manufacture products to meet user needs accurately and effectively  Aim - Acquire the skills needed when working on project-based research, development, and presentation.  Aim - Learners will develop an ongoing ability to recall, select and communicate sound knowledge and understanding of aspects of the engineering sector.  Design and Technology (2019)  Aim –  Aim -  Aim - |
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| **Wider curriculum links to CC/SMSC/PD and CEIAG** | KS4   * Scientific properties of materials (Material sciences, Chemistry) * Life cycle assessment and recycling (science) * Area and volume (Mathematics, Physics) * Handling data, marking out and mat quantities (mathematics) * Ethical & sustainable issues (History, Geography, SMSC) * Product designing to meet consumer needs. (Sociology, Product) * Literacy in analysis of existing products/own work (English) * Career options & progression routes (further education) * Creativity in engineering designs. (Art and Design) * Use of digital media to create CAD work/presentations (ICT) * Business profits, net, and gross incomes (Business, mathematics) * Operation of hospitality businesses (Business) * Developing a personal voice in response to opinions and ideas. * Understanding the importance of DT subjects within society. * Developing an enquiring and questioning mindset. * Trips to industry sites outside of Stocksbridge. * Demonstrating initiative, self- motivation and resilience. | |