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| **Year 10 – Design Technology** |
| **Curriculum intent** | Design Technology is about viewing the world around us. To look at where we are now in the 21st century, and where we could be in the future. To know about past and present designers, inventors and innovators and aspire to become people that design and shape the world. In an increasingly technological society we aim to encourage students to think independently and be creatively when working on a problem. We intend to teach students to be problem solvers in a safe learning environment and explain that making mistakes is okay, and part of the development of process. To build upon theory using research and ideas across all subjects and then apply it to solve real world issues. Design Technology is an inspiring practical subject using a broad range of subject knowledge such as mathematics, science, engineering, computing, food science and art. High-quality We aim to empower students to become the people who will solve the issue of tomorrows world. For example, climate change and the quality of life. Design Technology education makes an essential contribution to the creativity, culture, wealth and well-being of the human race and how we can help the world around us.  |
| **Term** | **Topic 1**Working with Timber | **Topic 2**Sustainability & The Environment | **Topic 3** Commercial Manufacture | **Topic 4**Smart Materials | **Topic 5** NEA Launch - AO1: Investigate the design possibilities |
| **Knowledge** | Understand the main processes involved in producing workable forms of timber including: * conversion,
* seasoning and the creation of manufactured timbers

Be aware of sustainability and ethical factors in timber production and useUnderstand the advantages and disadvantages of manufactured board compared with natural woodKnow and understand the commercial stock forms, types and sizes of timber based materials and components in order to calculate quantitiesBe aware of school based cutting, forming and processing techniques, tools and equipment | To understand the impact of new and emerging technologies. ​ To understand how new and emerging technologies have an impact upon the design and organisation of the workplace​.Understand how new and emerging technologies have an impact upon the tools and equipment. ​Be aware of how computers and automation have changed manufacturing through the use of robotics.​ | Know and understand how timbers and boards are selected and processed for commercial productsLearn how materials are cut, shaped and formed to a toleranceLearn about the preparation and application of treatments and finishes to enhance functional and aesthetic properties | Be able to recognise a range of smart materialsUnderstand how the functional properties of a range of smart materials can be changed by external stimuli | Knowledge gathered in the Walking and talking mock to be transferred to the launch of the NEA context on June 1st. Students begin working on the research and investigation of the context. |
| **Skills** | Throughout the year mini projects and a walking and talking mock (WTM) take place to develop the practical skills required for the students NEA in year 11 (Context introduced on June 1st). Walking and talking mock exams and a variety of practical projects develop the students design skills. CAD/CAM skills with independent use of the laser cutter a requirement. Skills in 3D software and realisation. Independent practical skills are built up and developed until students are proficient in all workshop hand held and power tools ranging from coping and tenon saws to the sanding built and reciprocating saws. |
| **Assessments** | Students will be assessed on:* Learners have six lessons of DT a fortnight. They are formally assessed according to the exam board assessment objectives: Investigation of needs, Specification, Design Ideas, Review of initial designs, Development, Communication, Manufacture, Material research, Quality and Accuracy, Evaluation.
* Formative assessment is given in every lesson. All Schemes will be delivered following the GCSE structure including all four assessment objectives.

Students will be assessed on:* A mock NEA assessment will take place across a couple of terms outside of smaller design and make projects.

 * A mock exam will take place in HT6, 1.5 hours in length. This will prepare learners for their exam that takes place in year 11.
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| **Enrichment**  | * Students could visit the Manchester museum of science and industry to experience real life design and engineering projects through time
* Students can attend afterschool sessions to get extra support from their teachers with their NEA

Students could visit the following websites:* <https://designmuseum.org/> - Design Museum London
* <https://qualifications.pearson.com/en/qualifications/edexcel-gcses/design-and-technology-9-1-from-2017.html> - GCSE student guide

Extra-Curricular events:* Visit to ASFC 3D department
* Visit to land rover jaguar Halewood
* Students to enter the D&AD design competition as extra-curricular
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