**Key Stage 4 Curriculum Map** Department: Design and Technology

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| **Subject****Year** | Year 10Design and Technology | *Overview/rationale & statement of importance – what learners can expect to gain from studying this subject this year*In Year 10, pupils will start the GCSE programmes of study. This will include pupils gaining knowledge and understanding of social, historical, cultural and technological influences of the design and technology industry. Whilst allowing pupils to work to design briefs, be creative and apply knowledge and understanding of broad material areas. These areas of include timbers, polymers, paper and board, metals and textiles. |
| **No of weeks/lessons** | Term 1 – 15 weeks. | Term 1 | Term 2 – 12 Weeks | Term 2 –  | Term 3 | Term 3 |
| **Unit Title** | Materials – Core UnitTimbersPolymersPaper and BoardsMetalsTextiles | Design and Make – Focal Practical TasksDesigners – home learningErgonomic project (pizza cutter handle) | Unit 1: New and Emerging Technologies | Mock Non-Examined Assessment | Unit 2: Developments in New Materials | Non Examined Assessment Contributes to 50% of students overall marks |
| **Objective** | To introduce pupils to a range of core material areas, linking at least three to a physical design and make task. | To apply theory skills to focal practical tasks | Pupils need to know the impact of new and emerging technologies. Covering:- industry, enterprise, sustainability, people, culture, society, environment and techniques. | To show pupils the requirements for the NEA and acquire skills in order to carry out the NEA | To gain knowledge and understanding of energy and energy storage. To be aware of SMART, Modern and Composite materials. To recognise the use of electronic and mechanical systems. | Students are asked to undertake a small scale design and make task and produce a final prototype based on a design brief and client needs. |
| **Iterative Links** | Building on knowledge from KS3 of different types of materials. | Building on practical skills for Yr8 and 9 |  | Building on design and make skills taught in term 1 | Building on KS3 ScienceBuilding on projects carried out at KS3 in D&T (lazy tongues, frog project and pneumatic project) | To use all skills and techniques learnt throughout the year and KS3. |
| **Knowledge & Understanding** | To gain knowledge and understanding of raw materials, stock forms, types, properties and uses of each core material area. | To gain knowledge of how the material works, techniques and processing the materials Use of modelling materials | To gain knowledge and understanding of how society, culture and industry interact with their environment. | Gain knowledge of working to a client and a brief | See objective | To design, plan, develop and realise a product based on a design context and the clients/users needs |
| **Skills** | Linking product with the type of material and the reasons why the material is used. | Using the laser cutterJoining techniquesUse of Styrofoam cutter – shaping material2D and 3D drawings |  | Investigating a contextResearch around the contextClients needs and wants – surveysPresenting informationDrafting up a design brief and specificationCommunicating design ideas | Link theory with uses and case studies | Investigating a contextResearch around the contextClients needs and wants – surveysPresenting informationDrafting up a design brief and specificationCommunicating design ideas |
| **Literacy** | Specific subject terminology and key wordsUse of Glossary | Subject specific terminologyMaterial names and characteristics | Specific subject terminology and key wordsUse of Glossary | Analysis of researchAnnotations around designsUse of CAFEQUE cards as prompts | Subject specific terminologyMaterial names and characteristics | Analysis of researchAnnotations around designsUse of CAFEQUE cards as prompts |
| **Numeracy** |  | MeasuringAnthropometric dataScale |  | Presenting dataInterpreting data | Gear RatiosMechanical advantageEquilibrium | Presenting dataInterpreting data |
| **Assessment** | End of Unit test on material areas – using PG Online resources and text book | Making skillsPresenting designs | End of Unit test on material areas – using PG Online resources and text book | Assess – task analysisAssess – design brief and specificationAssess – quality of design ideas  | End of Unit test on material areas – using PG Online resources and text bookTest formulae (F) | Using the exam board assessment requirement and JCQ rules.Assess – task analysisAssess – design brief and specification |
| **Health and Safety** |  | General workshop H&S rules |  | Use of craft knives if modelling |  | If modelling – use general workshop H&S rules |
| **Cross-curricular** | Science (Physics and Chemistry) | Science, Maths, Art | Science, Business Studies | Maths, Art, Sociology | Maths, Science | Business Studies, English, Sociology |