CARR HILL HIGH SCHOOL
Commitment Aspiration Resilience Respect

Timeline	Topic	Key concepts and knowledge	Skills development	Rationale
Term 1	1.Work of others 2. Shelf project	Students will investigate analyse the work of designers/ companies Students will understand how the Changes in fashion and Trends Other issues, beliefs, diversity Understanding how products can be designed for other people with a disability, religion Planning manufacture to minimise waste and manage materials effectively Select and use materials to produce a product Use a range of tools and equipment safely for timbers Organisation and planning Developing- • Sketching, 3D • Modelling • Evaluating • Modelling • Revise and recap safety in the workshop Surface finishes techniques Evaluating outcomes	Organising and planning in depth. Focus on Primary and secondary research Exploring designers and their work Evaluating and comparing outcomes Exam style questions for GCSE Communication of ideas Problem solving Numeracy (materials management, tolerances) Working with a range of tools and equipment safely Organisation and planning Literacy (technical vocabulary) Tolerances and marking out Assembly methods Materials selection and management Surface finish and modification of properties Shaping and forming materials with tools/equip Feedback and outcome	This mini module recaps knowledge taught in KS3, it introduces students to a wider choice and diverse designers. It enhances student's knowledge further with essay style questions to prepare them for Their NEA project Practice mini NEA project. Supports students with organisation, planning, designing and practical skills required in yr11 NEA task. A time to practice in a low stakes scenario whilst gaining more knowledge and skills.

	E- Textiles mini project	Working with fabric, e-textiles, smart materials modern materials technical textiles composite materials Nano textiles Electronic textiles Construction techniques. New e- textile components Properties and use of a range of materials (textiles and modern/smart materials	Exam skills Literacy (technical vocabulary) Application and use of a wide range of materials Assembly methods CAD CAM laser cutter Problem solving Accuracy – pattern template	Skills and knowledge required in exam and NEA element in year 11. Skills and knowledge taught in a holistic manner and interleaved throughout the course This mini module re-caps knowledge taught at KS3. Introducing new e-textiles skills with practical components. Understanding modern and smart materials across all material areas to reinforce knowledge at GCSE

Half term3	Wider impact of technology in industry Specialist materials	Wider impact of new and emerging technology in industry Systems approach to designing Inputs, process, outputs and programmable systems Specialist knowledge of timbers (timber types, seasoning and veneers) Use of enterprise to fund business innovation Market pull and technology push, anthropometrics, ergonomics, Automation, CAD, CAM, JIT, Flexible manufacturing (FMS), Lean manufacture Specialist timber knowledge, smart, modern and composite materials Crowd funding, Virtual marketing Co-operatives, Fair trade Market pull/ Technology push Anthropometrics/ ergonomics	Literacy (technical vocabulary) Awareness of social and economic issues relating to changing job roles in industry Specialist knowledge of timbers and pulling all previous knowledge of timber together.	This module recaps knowledge taught at KS3 and covers new topics to enhance students' knowledge of the wider impact of product design and manufacture.

Half term 4	Environmental and Sustainability	Source of materials from finite and non-finite sources Disposal of product/waste Designing for sustainability Energy generation (traditional and renewables) Finite and non-finite sources. Waste disposal. Product efficiency, pollution global warming. Planned obsolescence & design for maintenance. Ethics of design. Energy generation Arguments for and against power generation methods Pollution, global warming Maintenance of products to extend lifecycle Power generation: Coal, oil gas, nuclear Wind, solar, tidal, hydro-electric, biomass Fossil fuel and renewable advantages and disadvantages	Literacy (technical vocabulary) Awareness of social issues Awareness of environmental issues Understand exam questions Respond to exam questions Structure exam answers	This section recaps learning from KS3 and other subject areas such as science and geography by considering the impact of products on the environment and the ethics that companies must consider.

Half term 5	Wooden box project	Types of wood, plastics Wood, plastic finishes Tools and equipment identification and safe use. Components Wood joints: Finger, dovetail, lap, butt joint, mortise and Tenon joint Accuracy: tolerance, material management/tessellation, accurate marking out Industrial links Construction techniques Numeracy Accuracy CAD/ CAM orthographical layout exploded views , showing detailed view and assembly To use a wider range of tools and equipment To develop practical skills Recap and revisit existing knowledge taught in KS3 Develop CAD/CAM skills in 3D Develop and learn new software (solid works) Produce box handle on 3D printer	Confidence Independence Understand questions Respond to questions Structure answers Literacy (technical vocabulary) Numeracy Problem solving Self-management Accuracy working with timbers	This section recaps learning from KS3 and deepens student understanding of planning and carrying out practical work by shaping timber to make a product. Students will have discrete lessons to strengthen theory knowledge throughout and practice exam questions.

Half term 6	NEA released 1st June Exam board set task. Students working independently on their own project. Through the various stages Revision of skills and knowledge and application of these into exam board set task **NEA work will be continued in year 11	Investigate the context Identify the user Identify the problems Carry out a range of research specific to their design context Produce a design brief and Identify and investigate design possibilities Follow the design process independently.	Using a range of design strategies Use a range of research techniques (primary and secondary) Analyse existing products (critical analysis skills Evaluation of information and create design brief and specification Problem solving and experimentation Digital skills and communication techniques Self-management: organisation & meeting deadlines Resilience	NEA is worth 50% of the overall qualification grade. Each year the exam board set the task and students need to respond by identifying their own problem, user and design brief from the given context. Students work at their own pace and manage their own time while following the iterative design cycle. This half term is focused on completing the initial research into the design context and researching the problem and user needs. As this is an iterative process it is likely to be revisited during the project. The initial research is started as soon as possible and the research will continue at the start of yr11 before moving onto the designing and product realisation phases.