KS4 Curriculum Map – Design and Technology:

Topic	Substantive Knowledge This is the specific, factual content for the topic, which should be connected into a careful sequence of learning.	Disciplinary Knowledge (Skills) This is the action taken within a particular topic in order to gain substantive knowledge.	Assessment Opportunities What assessments will be used to measure student progress?
How can exploring the context a design solution is intended for inform decisions and outcomes?	• Considerations for exploring a context should include: • Stakeholder – what it means – study. • SMSC in design where and how the product or system is used.	• identifying primary user and wider stakeholder requirements. • how the investigation of social, cultural, moral and economic factors to identify opportunities and constraints can influence the design process.	• PPT and work booklets (notes). • Starter project in teams. • Consider stakeholder and D. Brief. • SMSC evaluation on product/idea. • Metacognition application at the end of the unit – reflecting and securing K&U.
Why is usability an important consideration when designing prototypes?	• Considerations in relation to user interaction with design solutions, including: • Inclusivity. • Ergonomic and anthropometric study. • Examples of aesthetics – real world examples.	• the impact of a solution on a user's lifestyle. • the ease of use and inclusivity of design solutions. • ergonomic considerations and anthropometric data to support ease of use. • aesthetic considerations.	• PPT and work booklets (notes). • Exam questions.
PROJECT Paper and Board	• Practical skills. • Material understanding. • Die cutting. • Lamination. • Making paper.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes.	• Project approach (D&M). • Paper making. • Chair design / structures. • Iterative process followed. • Presentation skills.

		• Using digital design tools. • Manufacturing methods & scales of production • Cost and availability.	• Metacognition application at the end of the unit – reflecting and securing K&U.
PROJECT Design Engineering	• Robot building. • Program system. • Electronics. • Control technology. • Design engineering.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes. • Using digital design tools. • Manufacturing methods & scales of production. • Cost and availability.	• Paired work. • Making buggy. • Programming buggy. • CRUMBLE (Redfern electronics). • Making skills – Design Engineering and theory for subject area. • Metacognition application at the end of the unit – reflecting and securing K&U.
What are the opportunities and constraints that influence design and making requirements?	• Learning from existing products and practice • Exploration and critique of existing designs, systems and products to identify features and methods, considerations should include: • Branding and fashion – top 100 brands • Example products. • Lifecycle assessment – examples for material areas looked at in depth. • Trialling Dyson box next year	• Development of understanding for the following: • the influence of fashion, trends, taste and/or style. • the influence of marketing and branding. • the impact on society. • the impact on usability. • the impact on the environment; lifecycle assessment. • the work of past and present professionals and companies in the area of Design and Technology.	• PPT and work booklets (notes). • Exam questions the materials, components and processes that have been used.
How do developments in Design and Technology influence design decisions and practice?	• Critical evaluation of how new and emerging technologies influence and inform design decisions, considering both contemporary and potential future scenarios. • Examples to investigate and present in groups: • Drones. • AI. • Nano technology.	• Development of understanding for the following: • Top 10 – new technologies. • Video ethics. • the environment. • product enhancement.	• PPT and work booklets (notes). • Exam questions. • Paired work – presentation given to class on emerging technology area of study.

	• Real world examples – house/retail/travel. • Internet of things. • Google car. • Products that failed – Sinclair C5.		
What are the impacts of new and emerging technologies when developing design solutions?	• Implications of wider issues • Exploration of the impacts within different contexts on: • Understanding the concept of a circular economy relating to SMSC. • Investigate the environment and sustainability in detail.	• Development of understanding for the following: • industry and enterprise, such as the circular economy. • people, in relation to lifestyle, culture and society. • the environment / sustainability.	• PPT and work booklets (notes). • Exam questions.
How do designers choose appropriate sources of energy to make products and power systems	• Development of understanding for the following: • The generation of electricity and how energy is stored and transferred. • fossil fuels, nuclear fuel, bio-fuel. • wind, hydro-electricity, tidal and solar.	• The appropriate use in products and systems of renewable and non-renewable sources including: • Investigation into how energy is stored/battery. • Renewable sources of generating electricity. • Future applications.	• PPT and work booklets (notes). • Exam questions.
What wider implications can have an influence on the processes of designing and making?	• Development of understanding for the following: • environmental initiatives. • fair trade. • social and ethical awareness. • global sustainable development.	• Consideration of environmental, social and economic influences, including: • Fair trade examples. • How can this be tested within an exam – need to learn two examples to recall.	• PPT and work booklets (notes). • Exam questions.
How can design solutions be communicated to demonstrate their suitability to a third party?	• Design thinking and communication • The use of graphical techniques to communicate ideas, modifications, constructional and technical considerations: • develop drawing skills • CAD Skills	• Development of understanding for the following: • clear 2D and 3D sketches with notes. • sketch modelling. • exploded drawings. • mathematical modelling. • flow charts	• 2d Design work. • Onshape design work. • Graphic skills. • Work booklet.

How do designers source information and thinking when problem solving?	• Biomimicry – examples designed. • user-centred design. • systems thinking.	• Awareness of different design approaches, including: • The importance of collaboration to gain specialist knowledge from across subject areas when delivering solutions in design and manufacturing industries.	• PPT and work booklets (notes). • Design work. • UCD – focus groups/questionnaires.
PROJECT Fibres and Fabrics	• • Practical skills. • Material understanding. • Applique. • Sewing skills / surface pattern. • Sewing machine skills.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes. • Using digital design tools. • Manufacturing methods & scales of production. • Cost and availability.	• Project approach (D&M). • Textile theme selected. • Use embroidery machine. • Heat press / Dye sublimation. • Making skills – Fibres and fabrics and theory for subject area. • Metacognition application at the end of the unit – reflecting and securing K&U.
PROJECT CAD/LIGHT/ Polymers	• • Practical skills. • Material understanding. • CAD design – Onshape. • 3D printing and Laser cutting.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes. • Using digital design tools. • Manufacturing methods & scales of production. • Cost and availability.	• Project approach (D&M). • Light design – remote control. • Use 3D printer. • Use laser cutter. • Use line bender and vacuum forming. • Making skills – Polymers and theory for subject area. • Metacognition application at the end of the unit – reflecting and securing K&U.
What are the main categories of materials available to designers when	• • Material consideration • Understanding that products are predominantly made from multiple materials. An overview of the main categories of materials to cover:	• papers and boards, including: • papers, e.g. layout and cartridge, different weights and coatings ii. card, e.g. carton board, bleached card and corrugated card iii. boards/sheets, e.g. foam board,	• Test papers. • Exam questions. • Work booklet / PPT. • Paired work.

developing design solutions?	• SECTION A of the examination • Materials	Styrofoam and polypropylene sheet iv. laminated layers, e.g. reflective surfaces. • natural and manufactured timber, including: • hardwoods, e.g. oak, birch and teak ii. softwood, e.g. pine, cedar and spruce iii. manufactured boards, e.g. MDF, plywood and block board. • ferrous and non-ferrous metals, including: • ferrous metals, e.g. iron, mild steel and stainless steel ii. non-ferrous metals, e.g. aluminium, copper and tin iii. alloys, e.g. brass, pewter and tin/lead solder. • thermo and thermosetting polymers, including: • thermo polymers, e.g. PET, HDPE, PVC, LDPE, PS, PP, ABS, acrylic and TPE ii. thermosetting polymers, e.g. silicone; epoxy resin and polyester resin. • textile fibres and fabrics, including: • natural fibres, e.g. cotton, wool and silk ii. synthetic fibres, e.g. nylon, polyester and acrylic iii. mixed/blended fibres, e.g. cotton/polyester iv. woven, non-woven and knitted fabrics. • Awareness of developments in: • modern and smart materials such as graphene, super alloys, biopolymers and nano-materials ii. composite materials and their purpose in relation to contrasting applications iii. technical textiles used in different types of products dependent on context.	• Opportunity to develop understanding of smart materials here: • SMART pack used by students. • Practical lesson. • Application for products.

What factors are important to consider when selecting appropriate materials and/or system components when designing?	• The physical and working properties of specific materials and/or system components, with consideration of: • how easy they are to work with ii. how well they fulfil the required functions of products in different contexts. • Other factors that influence the selection of materials and/or components, including; • required functionality of the design solution ii. aesthetic attributes iii. environmental considerations iv. availability and cost of stock forms v. social, cultural and ethical considerations	• The characteristic properties of the main categories of materials (5.1 a–e, not the specific materials) and why this makes them appropriate for different uses, such as: • density, strength, hardness, durability, strength to weight ratio, stiffness, elasticity, impact resistance, plasticity, corrosive resistance to chemicals and weather, flammability, absorbency, thermal and electrical conductivity	• Look at material testing. • Videos. • PPT – density questions. • BBC – bitesize link. • GCSE Design and Technology - OCR - BBC Bitesize
Why is it important to understand the sources or origins of materials and/or system components?	• The lifecycle of specific materials and/or system components when used in products. • Consideration of recycling, reuse and disposal of specific materials and/or system components, such as: • recycling and sustainability schemes • eco-materials • upcycling.	• An overview of the processes used to extract and/or convert the source material into a workable form. • Consideration of the ecological, social and ethical issues associated with processing specific materials and/or system components to convert them into workable forms, such as: mining, harvesting, manufacturing, transporting.	• Recap on Ch3 – this level of detail is used for answering a specific examination question in PART B. • Work examples. • Notes PPT work. • Exam questions.
Why is it important to know the different available forms of specific materials and/or systems components?	• Awareness of commonly available forms and standard units of measurement of specific materials and/or system components when calculating costs and quantities, including: • Maths skills applied. • Understanding of standard components and their financial benefits when being used in the production process.	• weights and sizes. • stock forms, such as: o lengths, sheets, pellets, reels, rolls, rods. • standard components, such as: paper and boards, e.g. clips, fasteners, bindings / timber, e.g. hinges, brackets, screws / metals, e.g. bolts, rivets, hinges / polymers, e.g. caps, fasteners, bolts / fibres and fabrics, e.g. zips, buttons, poppers / system components, e.g. resistors, capacitors, diodes, transistors and drivers, microcontrollers / mechanical components, e.g. gears and cams, pulleys and belts, levers and linkages.	• PPT and work booklets (notes). • Exam questions.

What gives a product structural integrity?	• How and why specific materials and/or system components need to be reinforced or stiffened to withstand forces and stresses. • triangulation / use of boning, darts and layering in textile products. • plastic webbing. • reinforcing.	• Technical understanding • Awareness of the processes that can be used to ensure the structural integrity of a product. • Higher level question understanding on SECTION B – see 2019 paper to demonstrate.	• PPT and work booklets (notes). • Exam questions. • Investigate 2019 paper and mark scheme.
How can materials and products be finished for different purposes?	• function, such as: durability and added resistance to overcome environmental factors • aesthetics.	• The processes used for finishing and adding surface treatments to materials and products for specific purposes.	• PPT and work booklets (notes). • Exam questions.
How do we introduce controlled movement to products and systems?	• An overview of different sorts of movement and types of motion. • Understand different class of lever. • Mechanisms understanding.	• An overview of different sorts of movement and types of motion, including: • rotary / linear / oscillating / reciprocating. • The effect of forces on the ease of movement, including: • load / effort / fulcrum. • How different mechanical devices are used to change the magnitude and direction of motion or forces, including consideration of: • cams / gears / pulleys and belts / levers and linkages.	• PPT and work booklets (notes). • Exam questions. • (*Possible project area to be developed here to secure understanding better*)
How do electronic systems provide functionality to products and processes?	• How sensors and control devices respond to a variety of inputs, including: • sensors including light dependent resistors (LDR), infra-red sensors / switches including tilt switches, push-to-make switches and time-delay switches. • How devices are used to produce a range of outputs, including:	• The use of programmable components such as microcontrollers, to embed functionality into products in order to enhance and customise their operation. • Chapter 13 goes into more depth.	• (*Possibly complete this with chapter 13 buggy project*) • PPT and work booklets (notes). • Exam questions.

	• light-emitting diodes (LED) to produce light / speakers and buzzers to produce sound / motors to produce motion.		
New and emerging technologies	• Economies of scale. • Disruptive technologies. • Additive manufacturing. • VR.	• The impact of new and emerging technologies on production techniques and systems. • Robots / Internet of things. • Maker movement.	• PPT and work booklets (notes). • Exam questions. • Presentation – paired work.
How can materials and processes be used to make iterative models?	• The processes and techniques used to produce early models and/or toiles to support iterative designing.	• Manufacturing processes and techniques • Not a specific chapter but runs through course.	• D&M tasks throughout.
How can materials be manipulated and joined in different ways in a workshop environment when making final prototypes?	• Individual/paired and group work. The use of specialist techniques, hand tools and equipment used to shape, fabricate, construct and assemble high quality prototypes, with exemplification of the processes listed. • Wastage • Addition • Deforming • Fabrication	• wastage, such as: paper and boards, e.g. cutting and punching / timber, e.g. sawing, drilling and turning / metals, e.g. sawing, drilling, sheering and turning / polymers, e.g. sawing and drilling / fibres and fabrics, e.g. cutting and shearing / design engineering, e.g. etching*. • addition, such as: paper and boards, e.g. adhesion and laminating / timber, e.g. adhesion, joining and laminating / metals, e.g. adhesion, welding/brazing and riveting / polymers, e.g. adhesion and heat welding / fibres and fabrics, e.g. sewing, bonding and laminating / design engineering, e.g. soldering. • deforming and reforming, such as: paper and boards, e.g. perforating and folding / timber, e.g. steaming and pressing / metals, e.g. pressing, bending and casting /	• Understanding developed through practical projects over the three-year course. • Project work on TEAMS.

		polymers, e.g. moulding, vacuum forming and line bending / fibres and fabrics.	
How do designers and manufacturers ensure accuracy when making prototypes and products?	• measuring and use of reference points, lines and surfaces. • templates, jigs and/or patterns. • working within tolerances. • understanding efficient cutting and how to minimise waste.	• The use of appropriate and accurate marking out methods: • Making a jig/template. • Working with tolerance and ensuring accuracy – applied in industry with examples.	• PPT and work booklets (notes). • Exam questions. • Practical skills – workshop. • Jig for cutting/drilling accuracy.
How do industry professionals use digital design tools when exploring and developing design ideas?	• rapid prototyping. • image creation and manipulation software • digital manufacture. • interpretation of plans, elevations of 3D models • CAD, CAM, CAE.	• The use of 2D and 3D digital technology and tools are used to present, model, design and manufacture solutions, such as: • 3D printed work.	• D&M task – using Onshape. • Tinker CAD. • Google sketch up. • Pro Desktop. • 2D design – *V3 availability?*
How do processes vary when manufacturing products to different scales of production?	• The methods used for manufacturing at different scales of production, including: • Awareness of manufacturing processes used for larger scales of production.	• one-off, bespoke production • batch production • mass production • lean manufacturing and just-in-time (JIT) methods. • Awareness of manufacturing processes used for larger scales of production, such as: • • paper and boards, e.g. offset lithography, screen process printing, digital printing, vinyl cutting, die cutting • timber, e.g. CNC routers, sawing and steam bending machines and lathes • metals, e.g. CNC milling, turning, sheet metal folding, pressing and stampings, and die casting • polymers, e.g. compression moulding, injection moulding, vacuum forming, rotational moulding, extrusion and blow	• Understanding developed through practical projects over the three-year course. • Project work on TEAMS • Individual/paired and group work.

		moulding • fibres and fabrics, e.g. band saw cutting, flatbed and rotary screen printing, digital lay planning, industrial sewing machines and overlockers, automated presses and steam dollies • design engineering, e.g. laser cutting, rapid prototyping and 3D printing	
How do new and emerging technologies have an impact on production techniques and systems?	• consideration of economies of scale • how disruptive technologies such as 3D printing and robotics are changing manufacturing.	• Critical evaluation of the benefits and implications of incorporating new and emerging technologies into production processes: • SECTION B of examination.	• Understanding manufacturing processes – specific to P&B plus one other material area. • Presentation.
How can cost and availability of specific materials and/or system components affect their selection when designing?	• The significance of the cost of specific materials and/or system components in relation to commercial viability, different stakeholder needs and marketability • How to calculate the quantities, cost and sizes of materials and/or system components required in a design or product, being able to apply this to different applications.	• MATHS SKILLS (Q2 in examination) • Use ratios, fractions and percentages. • Calculate surface area and volume. • Presentation of data, diagrams, bar charts and histograms. • Plot draw and interpret appropriate graphs. • Translate information between graphical and numeric form. • Use angular measures in degrees. • Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects. • Calculate areas of triangles and rectangles. • Calculate the surface area and volumes of cubes.	• Q2 in Examination: • Work through examples. • Q2 testing since 2019. • Work through formulas. • *Maths requirements and science are all met within the school.*
PROJECT E textiles P&B & Smart materials	• Repeated core content to embed understanding • Practical skills. • Material understanding. • Paper and Board focus. • E textiles focus.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes. • Using digital design tools.	• Project approach (D&M). • Textile & PB theme. • Use e-textiles and examine industry examples in fashion. • Making skills – Fibres and Fabrics and Paper and Board theory for both subject areas. (SECTION B Responses)

		• Manufacturing methods & scales of production. • Cost and availability.	• Metacognition application at the end of the unit – reflecting and securing K&U.
PROJECT Metals	• Physical and working • Practical skills. • Material understanding. • Metals. • Pewter casting. • Develop idea with glass paint and resin casting. • Metal skills in workshop.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes. • Using digital design tools. • Manufacturing methods & scales of production. • Cost and availability.	• Project approach (D&M). • Jewellery project. • Ideas and development focus. • Ergonomics and anthropometrics used for key information. • Metacognition application at the end of the unit – reflecting and securing K&U.
PROJECT Timber	• • Practical skills. • Material understanding. • Timber – soft and hardwoods. • Garden project. • Workshop skills.	• Physical and working properties. • Sources and origins. • Commonly available forms. • Manipulating and joining. • Structural integrity. • Making iterative models. • Finishes. • Using digital design tools. • Manufacturing methods & scales of production. • Cost and availability.	• Project approach (D&M). • Garden project. • Research and Evaluation focus. • Environment key information. • Metacognition application at the end of the unit – reflecting and securing K&U.
MOCK EXAM 1	• Exam opportunity	• Focused revision session. Provide learners with focused and supported revision that allows them to review their collated and developed revision materials, and to use these to prepare for a practice test.	• Complete mock examination paper. • Analysis of results • 1to1 as required

NEA (Strand 1) Investigations of the context	• Comprehensive investigations identify a breadth of challenging problems and opportunities for further consideration.	• Strand 1 – Explore (AO1) • Students are given the three contexts to discuss. Teacher produce support PPT documentation • Provide students with the contextual challenge(s) as a PDF, from which they can copy and paste the text onto a slide in their NEA document. Ensure the document is set up to A3, and permissions/access arrangements are in place.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA (Strand 1) Design brief	• Students commence by analysing the context and mapping a range of stakeholders who would be connected to the contextual challenge. • Context selected.	• Clear and full relevance to the context offering scope for challenge and a focused identification of a primary user and other stakeholders.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA (Strand 1) Investigations of user and stakeholder needs and wants and the outlining of stakeholder requirements (non/technical specification)	• Students could map out products, ideas, issues and factors that relate to the specific context they have chosen to explore. This might involve directly referencing to the language and words of the contextual challenge. • Design brief.	• Full and objective consideration of primary user and other stakeholders needs and wants. A range of comprehensive requirements are identified that offer scope to support the design process.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA (Strand 1) Investigations of existing products and design practices	• Stakeholder needs and wants. • Questionnaire. • Existing products.	• Full and objective consideration of primary user and other stakeholders needs and wants. A range of comprehensive requirements are identified that offer scope to support the design process.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.

NEA (Strand 1) Exploration of materials and possible technical requirements	• Students should look to continue sourcing and analysing existing products, including products that both relate or come from a comparable context • Materials work recorded.	• Full and objective consideration of materials and possible technical requirements when required throughout the design process.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA (Strand 1) Technical specification	• Technical specification	• N/A	• Complete in for examination
NEA (Strand 2) Generation of initial ideas	• Strand 2 – Create: Design Thinking (AO2) • Create a range of 10 concept sketches that respond to the design brief, meet the requirements (on the whole), and fit within the contextual challenge.	• Different and relevant design approaches that lead to ideas that fully avoid design fixation, offer scope for challenge and fully reflect requirements.	• Produce design ideas over the summer holiday to best prepare for design development
NEA (Strand 2) Design developments	• Be able to use different design strategies and approaches such as collaboration, user-centred design and systems thinking when generating and developing innovative design ideas that avoid design fixation. • Rough ideas • Select 3 ideas – link to user/stakeholder • 3 ideas • Develop ideas	• Design developments Limited developments are superficial and/or are not iterative. Iterative developments are generally progressive and respond to some identified next-steps of development. Iterative developments are progressive, incorporating technical requirements and respond to most identified next-steps of development. Iterative developments are comprehensive and progressive, incorporating all technical requirements and fully respond to identified next-steps of development.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA (Strand 2) Development of final design solution(s)	• Students must employ a level of appropriate digital design and manufacturing in their NEA. If they have not achieved this at this point (through earlier iteration) then they must use it during final prototype manufacture.	• Clear and comprehensive progression from earlier developments and all of the identified opportunities and requirements have been met.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.

	• CAD – develop din at least one idea • Final idea developed		
NEA (Strand 2) Critical thinking	• Systematic and effective responses to all identified problems. Clear and systematic evidence of innovation throughout the design process.	• Challenge students to review material sections relevant to their deeper learning that will support and inform them during the prototyping process. This could be directed but would be better independent.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA (Strand 1) Technical specification	• CAD work for final design idea. • Dimensions and accuracy.	• High levels of accuracy, outlines details that clearly communicate all requirements to a third party.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations.
NEA Strand 3	• Quality of chronological progression. • Quality of initial ideas. • Quality of design developments. • Quality of final design solution(s).	• Strand 3 – Create: Design Communication (AO2)	• 1to1 assessment discussions with each student. • How to improve?
NEA (Strand 4) Quality of planning for making the final prototype(s)	• Strand 4 – Create: Final Prototype(s) (AO2) • Making skills after fully developed plan.	• Comprehensive and relevant, covering all requirements identified from the technical specification to effectively manage the making process.	• Making skills applied for specific material area. • Teacher and technician support as required.
NEA (Strand 4)	• Making.	• Excellent standard, demonstrating high levels of accuracy. Finishing is appropriate and the outcome will present well and provide impact to a stakeholder.	• Making skills applied for specific material area. • Teacher and technician support as required.

NEA (Strand 4)	• Making.	• Excellent and are effective and consistently appropriate to materials/components being used.	• Making skills applied for specific material area. • Teacher and technician support as required.
MOCK EXAM 2	• CHAPTER 15 • Complete last available full J310 examination as mock.	• Marked against examination criteria. • Predicted grades can be set with NEA overview at this stage.	• Full examination in test conditions. • DATA analysis of results. • (Paper is stored by teacher).
NEA (Strand 4)	• Making.	• Use and selection of hand tools and machinery are effective and consistently appropriate. Digital design and manufacture are used effectively and appropriately to demonstrate excellent skills and knowledge.	• Making skills applied for specific material area. • Teacher and technician support as required.
NEA (Strand 4)	• Making. • Test and photograph.	• Meets all of the technical specification and demonstrating excellent potential to become a marketable product.	• Making skills applied for specific material area. • Teacher and technician support as required.
NEA (Strand 5)	• Strand 5 – Evaluate (AO3) • Analysis throughout whole NEA.	• Comprehensive and systematic analysis and evaluation of investigated sources of information from stakeholders, existing products and wider issues, offering clear and focused support to inform the design process.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations
NEA (Strand 5)	• Be able to test, critically analyse and evaluate their design solutions against the identified stakeholder requirements, design opportunities and constraints in order to refine and improve future iterations • Testing product.	• Full and critical evaluations with focused reflection on requirements and feedback. • Ongoing, clear and comprehensive reviews to identify problems and next-steps for future iterations to effectively and consistently support design progression.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations

NEA (Strand 5)	• Provide instruction for students to prepare a modified or improved version of their final prototype using • Video of product being tested.	• Comprehensive with fully appropriate methods used to analyse and test whether the design solution is fit for purpose.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • Feedback is generic to meet OFQUAL regulations
NEA (Strand 5)	• Modifications in PPT. • Final design presented.	• Full and critical evaluation of strengths and weaknesses with comprehensive suggestions for modification and consideration of possible design optimisation presented.	• Work on NEA. • All work submitted on TEAMS. • Deadlines set for each section. • FINAL NEA SUBMISSION • Students given score 100.
Examination preparation	• Section A responses. • Section B responses.	• How to answer questions in depth. • Using the MARK scheme for past papers.	• Mock papers 1&2. • Example answers. • Previous test papers.