Medium Term Planning Document: GCSE Design and Technology Year 11 2024-25

Curriculum Intent:

At KS4 GCSE Design and Technology will prepare students to participate confidently and successfully in an increasingly technological world. Building on their experience at KS3, students study core technical designing and making principles, including a broad range of design processes, materials techniques and equipment. The will study Timbers and Polymers in greater depth. Students gain an awareness and learn from wider influences including historical, cultural, environmental and economic factors. Students will have the opportunity to work creatively when designing and making, applying technical and practical expertise.

'Why This, Why Now?'

At the start of Year 11 students continue with the work they have already started on AO1, identifying and investigating design possibilities, for their NEA. This is used to inform their next steps as they follow the iterative design process when working through producing a design brief and specification, generating and developing design ideas, realising designing ideas and analysing and evaluating.

During the time students are working on their NEA tasks, bell work focuses on exam style questions to help embed theory learnt in Year 10 to their long term memory. One lesson a fortnight also focuses on embedding content learnt in Year 10.

During half term 5 and 6, students focus on exam technique, command words and subject content to ensure learning is committed to long term memory.

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The Medium Term Planning document below is designed to show the journey that every student takes through our curriculum. Some elements of the curriculum may be taught over several lessons, others in a single lesson.

GCSE D&T	**Year 11 – Half Term 1**		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
AO1 – Identify, investigate and outline design possibilities Section A	Identifying and investigating design possibilities	Bell work Seneca	NEW-GCSE-DT-NEA-AQA-Guide-to-Context-Section-A-.pptx
	Key Words: iterative design**,** task analysis, design possibilities, client, target group, primary and secondary research, end user, investigation, economic and social effects		
AO1 – Identify, investigate and outline design possibilities Section B	Producing a design brief and specification	Bell work Seneca	DT-NEA-AQA-Guide-to-2020-Context---Section-B-TES-upload.pptx
	Key Words: aesthetics, cost, client, environmental issues, size, safety, function, properties of materials, ergonomics, anthropometric data, manufacture		

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GCSE D&T	Year 11 – Half Term 2		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
AO2 – Design and make prototypes that are fit for purpose Section C	Generating Design Ideas	Bell work Seneca	Year 11 DT - Initial design ideas - linked lessons .pptx
	Key Words: annotation, freehand sketches, rendering, modelling, test and evaluate, client feedback		
AO2 – Design and make prototypes that are fit for purpose Section D	Developing Design Ideas	Bell work Seneca	DT-GCSE-NEA-AQA-Guide-to-Section-D.pptx
	Key Words: test and evaluate, modelling, client feedback, perspective drawing, orthographic projection, isometric drawing, exploded diagrams, scale drawings, manufacturing specification, prototype		

Summative Assessment:

Pupil Mock Exams will take place during half term 2. These will cover all content taught in Year 10 and the first 2 half terms. This assessment will inform pupil Rank Order in the subject.

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GCSE D&T	Year 11 – Half Term 3		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
AO2 – Design and make prototypes that are fit for purpose Section E	Realising design Ideas	Bell work Seneca	DT-GCSE-NEA-AQA-Guide-to-Section-E-TES-Upload.pptx Practical lessons – please use Seneca to revise theory content. www.senecalearning.com
	Key Words: prototype, manufacture, materials**,** components		

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GCSE D&T	Year 11 – Half Term 4		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
AO3 – Analyse and evaluate	Analysing and evaluating	Bell work Seneca	DT-GCSE-NEA-AQA-Guide-to-Section-F-Analysing-and-Evaluating-TES-Upload-2020-v1.pptx
	Key Words: feedback, fit for purpose, modification, improvements, iterative design, design specification, manufacturing process, production methods		

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GCSE D&T	Year 11 – Half Term 5		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
New and Emerging Technologies	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: automation, computer aided design (CAD), computer aided manufacture (CAM), computer aided testing (CAT), prototype, computer numerical control (CNC), rapid prototyping, enterprise, start-up business, app design and development, patent, virtual marketing, virtual retail, search engine optimisation, cooperative, Fairtrade, finite resources, non-finite resources, life cycle assessment (LCA), positive impact, negative impact, built in obsolescence, Kaizen, technology push, market pull, graphene, product data management, flexible manufacturing system (FMS), lean manufacturing, just in time (JIT), planned obsolescence, built-in obsolescence, life cycle assessment (LCA)		
Energy, Materials, Systems and Devices	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: global warming, turbines, finite, fossil fuels, fracking, renewable, solar farms, tidal, hydroelectric power, biofuel, nuclear, radioactive, pneumatics, hydraulics, compression, bar, kinetic, motion, potential, flywheel, batteries, cells, miniaturisation, biodegradable, titanium, graphene, liquid crystal displays, nanotechnology, Polymorph, biodegradable, prototyping, ultraviolet, shape memory alloy (SMA), nitinol, muscle wire, conductor, insulator, piezoelectric, quartz, thermosetting, condensation, vapour, aramids, e-textiles, Nomex, Kevlar, aramid, flame retardants, microfibres, synthetic, microencapsulation, subtasks, subsystems, input, process, output, open loop system, closed-loop system, feedback, polarity, pole, throw, transducer drivers, integrated circuits, microcontroller, analogue signal, digital signal, peripheral interface controller (PICs), integrated circuit (IC) monostable, astable, passive infrared sensor, oscillating, frequency, hertz, mechanical advantage (MA), fulcrum, effort, load, camshaft, follower, dwell, block and tackle		
Materials	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: absorbency, density, fusibility, electrical conductivity, thermal conductivity, strength, hardness, toughness, malleability, ductility, elasticity, GSM, microns, hardwood, softwood, deciduous, coniferous, evergreen, felling, veneer, ferrous, non-ferrous, alloys, ore, furnace, Bauxite, ferrite, carbon, oxidise, verdigris, patina, galvanise, polymers, thermoforming, thermosetting, thermosets, Bakelite, yarn, warp, weft, selvedge, plain weave, felting		

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Common Specialist Technical Principles	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: static load, dynamic load, tension, tensile strength, compression, compressive strength, torsion, torsional strength, bending, stiffness, shear force, dynamic forces, static forces, reinforced concrete, composite material, webbing, laminated, interfacing, folding and bending, flexibility, net, cut-lines, score-lines, tabs, carbon footprint, ecological footprint, social footprint, Health and Safety Executive (HSE), Fairtrade, deforestation, slash and burn, desertification, mining, borehole, pipelines, farming, life cycle assessment, hierarchy of sustainability, miniaturisation, primary recycling, secondary recycling, upcycle, tertiary recycling, bespoke, one-off, batch, lead time, continuous production		

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GCSE D&T	Year 11 – Half Term 6		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Specialist DT Resources - Timber	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: rough sawn, planed all round (PAR), seasoned, lamination, compression, veneer, desertification, deforestation, global warming, provenance, mouldings, skirting boards, architrave, dowel rods, knock-down fittings (KDF), rebating, former, jog, steamer box, quality control, go/no go, tolerances, aesthetics, protection, tanalised, volatile organic compounds (VOCs)		
Specialist DT Resources - Polymers	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: biopolymers, polymerisation, monomers, crude oil, fractional distillation, catalyst, thermoplastics, thermosetting plastics, pigments, plasticisers, fragrances, stabilisers, life cycle assessment (LCA), energy recovery, gauge, toque, self-tapping screws, laminating, jig, former, stereolithography, digital light processing, laser sintering, Fused Deposition Modelling (FDM), catalyst, cure, capillary action, blow moulding, rotational moulding, vacuum forming, injection moulding, extrusion, hydraulic piston, ejector pins, extrusion, die, parison, quality control		
Designing Principles	Revision of content taught in Year 10	Bell work Seneca	Please use Seneca to revise theory content. www.senecalearning.com
	Exam Technique		
	Practise Questions		
	Key Words: Iterative design, feedback, primary, secondary, site study, ergonomics, anthropometrics, design and manufacturing specification, Arts and Crafts Movement, Bauhaus, Art Nouveau, Post-Modern, De Stijl, Cubism, Art Deco, user-centred design, iterative design process, intuitive design, design fixation, freehand sketching, oblique projection, isometric projection, two-point perspective, vanishing points, construction lines, systems diagrams, schematics, exploded drawing, sectional view, orthographic projection, scale, commercially viable, aesthetic, functional, CAD, render, component, prototype, nesting, tessellation, datum, templates, jigs, patterns, batch, PPE, data sheet, outsourcing, rust, corrosion, wood decay fungus		

Summative Assessment:

Pupil Mock Exam Assessments will take place during half term 4. These will cover all content taught in year 10 and terms 1,2,and 3. This assessment will inform pupil Rank Order in the subject and predicted grades. There is an expectation that staff will work with pupils to improve knowledge in areas of weakness identified in the summative assessments. This may include in school and out of school intervention, and collaborative and independent study.