



GCSE Design and Technology	Working towards expected outcomes	Working at expected outcomes	Working beyond expected outcomes
<p><b>Year 10 Unit 1</b></p> <p><b>Key ideas in DT</b></p>	<p>Your child is not yet making the expected progress within this course.</p> <p>Students in this category are beginning to understand key DT theory but need regular support to access content and complete work. Homework may be incomplete or show basic understanding only.</p> <ul style="list-style-type: none"> <li>Requires support to grasp and explain key concepts (e.g. automation, CAD/CAM, sustainability, manufacturing systems).</li> <li>Written responses are brief, lacking technical vocabulary or depth of explanation (e.g. simple statements instead of structured answers).</li> <li>Struggles to apply concepts like life cycle assessment or the 6Rs to real product contexts.</li> <li>Limited understanding of how power systems, storage, and energy sources affect DT decision-making.</li> <li>Independent learning tasks such as quizzes, retrieval practice, or workbook questions are incomplete or inaccurate.</li> <li>In group discussion or pair work, rarely contributes ideas or relies heavily on prompts.</li> <li>Work shows minimal evidence of reflection on wider issues such as environmental or social impact of design.</li> </ul>	<p>Your child is achieving the expected progress for this point within the course.</p> <p>Students working at this level show secure understanding of key GCSE content and complete tasks with reasonable independence and clarity.</p> <ul style="list-style-type: none"> <li>Demonstrates a clear understanding of key concepts such as CAD/CAM, lean manufacturing, sustainability, energy sources, and production systems.</li> <li>Can explain advantages and disadvantages of different manufacturing technologies and systems using appropriate terminology.</li> <li>Applies the 6Rs and life cycle assessment to design contexts with some insight.</li> <li>Identifies and explains the impact of design decisions on society, the environment, and different user groups.</li> <li>Independent learning tasks are completed on time and show an understanding of retrieval content and workbook-based activities.</li> <li>Summarises content effectively and participates in discussion with developing confidence and relevance.</li> <li>Shows a developing ability to connect theory to the wider world (e.g. understanding market pull, social responsibility, ethical design, or technological influence).</li> </ul>	<p>Your child is exceeding the expected progress.</p> <p>Students working beyond expected outcomes show a deep understanding of the theory and wider implications of Design and Technology, with highly accurate and insightful application in their work.</p> <ul style="list-style-type: none"> <li>Consistently explains complex concepts (e.g. smart systems, continuous improvement, energy storage systems) using precise, subject-specific vocabulary.</li> <li>Independent learning tasks are completed to an exceptional standard, often going beyond expectations in depth or extension work.</li> <li>Demonstrates critical thinking when evaluating sustainability, ethical design, or societal impact, drawing on real-world examples and case studies.</li> <li>Applies theoretical knowledge to product examples with accuracy and originality (e.g. explaining how CNC reduces waste or how battery types affect product design).</li> <li>Produces detailed summaries and structured written responses that show logical reasoning and well-supported conclusions.</li> <li>Actively contributes to discussions and group work with thoughtful, evidence-based ideas.</li> <li>Makes clear connections between DT knowledge and future pathways, such as medicine, engineering, or enterprise.</li> </ul>



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<p><b>Year 10 Unit 2</b></p> <p><b>Introduction to Materials and Systems</b></p>	<p>Your child is not yet making the expected progress within this course.</p> <p>These students are beginning to grasp key concepts but need regular support and prompting to complete tasks. Homework and retrieval work may show gaps or lack application of vocabulary and theory.</p> <ul style="list-style-type: none"> <li>Requires help to recall and explain material classifications and basic properties (e.g. hardness, ductility, conductivity).</li> <li>Struggles to differentiate between material groups (e.g. thermoforming vs thermosetting polymers, hardwood vs softwood, ferrous vs non-ferrous).</li> <li>Work shows limited ability to apply knowledge of materials or systems to real-world product contexts.</li> <li>Homework quizzes and flashcards are incomplete or show superficial answers.</li> <li>Cannot yet independently explain input-process-output systems, circuit symbols, or the function of electronic components like resistors or microcontrollers.</li> <li>Mechanical system work (e.g. levers, gears, pulleys) shows basic understanding but lacks accuracy or confidence with calculations such as gear ratios or velocity ratios.</li> <li>Retrieval tasks often lack detail, with incorrect or missing technical terms.</li> </ul>	<p>Your child is achieving the expected progress for this point within the course.</p> <p>Students in this category have a secure grasp of materials and systems content and are able to apply this understanding across homework and classwork with growing accuracy and independence.</p> <ul style="list-style-type: none"> <li>Correctly categorises materials and explains their properties using appropriate terminology (e.g. malleable, conductive, recyclable).</li> <li>Demonstrates understanding of material uses, sustainability, and processing methods (e.g. MDF production, polymer forming).</li> <li>Accurately explains key electronics concepts including components, PCBs, microcontrollers, and variable resistors.</li> <li>Can draw and interpret simple circuits using correct symbols.</li> <li>Completes retrieval and homework tasks on time with mostly accurate answers that use correct vocabulary (e.g. “blended fibres,” “smart materials,” “input-process-output”).</li> <li>Applies knowledge of mechanisms (e.g. cams, gears, levers) to product functions and calculations (gear ratios, MA).</li> <li>Shows understanding of the purpose and function of modern materials and technical textiles (e.g. Kevlar, shape memory alloys) through multimedia tasks or summarised notes.</li> </ul>	<p>Your child is working beyond the expected progress for this point within the course.</p> <p>These students demonstrate confident, wide-reaching understanding of materials and systems. They consistently link theory to real-world applications and produce high-quality independent work.</p> <ul style="list-style-type: none"> <li>Uses advanced terminology fluently to explain material properties, manufacturing methods, and sustainability issues.</li> <li>Compares materials across categories, justifying choices for specific functions using multiple property criteria.</li> <li>Applies electronics knowledge to custom circuit diagrams, explains component roles precisely, and demonstrates full understanding of system flow (input-process-output).</li> <li>Completes all homework to a high standard, often extending beyond the minimum (e.g. detailed flashcards, fully labelled diagrams, annotated summaries).</li> <li>Performs accurate calculations related to mechanical systems and explains their implications clearly (e.g. gear reduction, pulley efficiency).</li> <li>Describes and evaluates modern and smart materials with real-world examples (e.g. CRP in F1, thermochromic pigments in novelty items).</li> <li>Independently connects new material developments to wider themes such as ethics, sustainability, accessibility, or innovation in society.</li> </ul>



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<p><b>Year 10 Unit 3</b></p> <p><b>More About Materials</b></p>	<p>Your child is not yet making the expected progress within this course.</p> <p>These students are developing understanding but require ongoing support and guidance. Homework may be incomplete or show surface-level recall.</p> <ul style="list-style-type: none"> <li>Needs help recalling and applying the 8 key factors in material selection (e.g. function, availability, cost, ethical issues).</li> <li>Struggles to explain forces and stresses or identify their effects on materials (e.g. tension, torsion, compression).</li> <li>Limited understanding of how materials can be reinforced or made more functional (e.g. lamination, interfacing, folding).</li> <li>Can list production scales (e.g. batch, mass, continuous) but has difficulty explaining examples or differences.</li> <li>Independent learning tasks (e.g. summaries, tolerances, fibre comparisons) are often incomplete or missing key technical vocabulary.</li> <li>Unable to explain quality control techniques or production aids (e.g. go/no-go gauges, jigs, reference points) without direct support.</li> <li>Demonstrates minimal understanding of environmental impacts of material production (e.g. mining, oil extraction, deforestation) or how sustainability can be improved.</li> </ul>	<p>Your child is achieving the expected progress for this point within the course.</p> <p>These students demonstrate a sound understanding of materials, systems, and production. They complete homework with reasonable accuracy and apply terminology appropriately.</p> <ul style="list-style-type: none"> <li>Explains most of the 8 material selection factors and can apply them to justify basic material choices.</li> <li>Identifies and describes forces and stresses accurately, with some use of real-world examples or diagrams.</li> <li>Understands methods to enhance material properties (e.g. lamination for strength, webbing for tension) and applies them to context.</li> <li>Can describe and differentiate between production scales, giving relevant product examples.</li> <li>Completes homework quizzes and revision summaries using correct vocabulary (e.g. smart materials, tolerances, composite properties).</li> <li>Describes quality control methods (e.g. go/no-go gauges, registration marks) and basic production aids (e.g. jigs, templates, patterns).</li> <li>Shows awareness of environmental issues related to material sourcing and processing and can suggest basic improvements (e.g. use of recycled materials, forest stewardship).</li> </ul>	<p>Your child is working beyond the expected progress for this point within the course.</p> <p>Students working beyond expectations show excellent theoretical understanding and confidently apply learning to real-world contexts. Homework is detailed, independent, and insightful.</p> <ul style="list-style-type: none"> <li>Analyses and applies material selection criteria with full awareness of conflicting priorities (e.g. cost vs sustainability vs performance).</li> <li>Clearly explains complex forces and stresses with technical accuracy, linking these to real material behaviours and reinforcement techniques.</li> <li>Describes, compares, and evaluates scales of production in terms of efficiency, cost, and suitability for different products or user needs.</li> <li>Independent learning shows excellent use of terminology and goes beyond basic recall, including detailed examples, diagrams, and critical reflection.</li> <li>Explains the role of tolerances in manufacturing and how production aids like templates, jigs, and patterns ensure consistency and accuracy.</li> <li>Applies quality control techniques to real scenarios (e.g. printed cards, circuit boards) and understands how automation supports high-volume production.</li> <li>Demonstrates clear understanding of environmental consequences of material extraction and manufacturing, and can propose advanced, ethical alternatives (e.g. biopolymers, circular design, low-impact farming methods).</li> </ul>



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<b>Year 10 Unit 4</b>  <b>Designing and Making</b>	<p>These students are beginning to engage with design thinking but need regular support to apply knowledge and make design decisions confidently. Homework may lack depth or structure.</p> <ul style="list-style-type: none"> <li>Needs guidance to identify user needs or design requirements relevant to a specific context or brief.</li> <li>Product analysis is superficial, lacking depth or failing to link observations to real design considerations (e.g. function, performance, materials, sustainability).</li> <li>Limited application of ergonomic or anthropometric data in designs or uses incorrect measurements.</li> <li>Design iterations are basic or disconnected; changes are often cosmetic rather than functional or user driven.</li> <li>Sketches or models lack accuracy, purpose, or sufficient annotation to communicate ideas effectively.</li> <li>Independent learning tasks (e.g. product evaluations, design summaries, modelling notes) are incomplete or show weak understanding of key terms and processes.</li> <li>Evaluation work focuses mainly on appearance rather than fitness for purpose, usability, or potential for manufacture.</li> </ul>	<p>These students are developing sound design judgement and working increasingly independently. They apply theory to real problems and complete homework with accuracy.</p> <ul style="list-style-type: none"> <li>Identifies appropriate user needs and uses these to inform idea generation and early design decisions.</li> <li>Analyses existing products in relation to key criteria such as function, user suitability, material choices, cost, and sustainability.</li> <li>Applies anthropometric and ergonomic data with reasonable accuracy to ensure usability in their designs.</li> <li>Demonstrates the iterative process clearly: ideas evolve in response to testing and feedback.</li> <li>Produces clear, well-proportioned sketches and/or models with annotations that explain function, materials, and construction.</li> <li>Independent learning tasks show understanding of the design process and good use of subject-specific vocabulary and structured thinking.</li> <li>Evaluates design ideas with some critical thought, using specification points and feedback from others to suggest improvements.</li> </ul>	<p>These students show confident and refined design thinking, with highly developed modelling, evaluation, and user-centred approaches. Their work demonstrates independence and creativity throughout.</p> <ul style="list-style-type: none"> <li>Clearly identifies nuanced or complex user needs and integrates these into design briefs and ongoing work.</li> <li>Analyses products deeply, considering function, ergonomics, materials, sustainability, aesthetics, and user interaction with confidence and relevance.</li> <li>Applies anthropometric and ergonomic data precisely and appropriately, showing awareness of inclusive design.</li> <li>Designs evolve substantially through meaningful iteration, user testing, and critical self-reflection.</li> <li>Sketches and models are highly communicative, well-annotated, and supported by technical justification and clear developmental purpose.</li> <li>Independent learning demonstrates consistent effort, insight, and accuracy — often exceeding the core task with additional research, refinement, or creativity.</li> <li>Evaluations are reflective, balanced, and linked to performance, user feedback, specification points, and future improvements.</li> </ul>

