

Subject Overview D&T year 10

| Year                |  |   |  |   |  |  |
|---------------------|--|---|--|---|--|--|
|                     | Half Term 1  | Half Term 2   | Half Term 3  | Half Term 4   | Half Term 5  | Half Term 6  |
| Topic               | Core Technical Principals  | Core Technical Principals   | Core Technical Principals  | Specialist Technical Principals   | Specialist Technical Principals  | Specialist Technical Principals  |
| Key Concepts        | New and emerging technologies.<br>Design Strategies.<br>Communication of design ideas.<br>Energy generation and storage  | Systems approach to designing.<br>Mechanical devices.<br>Developments in new materials.<br>Developments in new materials  | Communication of ideas.<br>Ecological and social footprint.<br>Communication of idea. Sources and origins.<br>Stock forms types and sizes      | Manufacturing specification/working drawings. Tools, equipment and processes<br>Quality control.            | Generating imaginative and creative designs.<br>How to write a design specification<br>Communication of design ideas.<br>Prototype development | Tolerances.<br>Material management.<br>Selection of materials and components.<br>Specialist techniques and processes   |
| Learning Objectives | Robotics, automation and production in industry.<br>Production techniques and systems – automation.<br>Market pull and technology push.<br>The environment, Ethics | Systems, Types of motion.<br>Modern materials<br>Smart materials.<br>Composite materials.<br>Technical Textiles.<br>Material properties.<br>Functionality.<br>Aesthetics. | Designing. The six Rs, Properties of materials.<br>Modifying properties for a purpose.<br>Commercially available types and sizes of materials. | Specialist techniques and processes.<br>Material management.<br>Tolerances. Surface treatments and finishes | Isometric and perspective designs<br>Exploded diagrams<br>Working drawings<br>Computer-based tools<br>Audio and visual recordings<br>Modelling | Working accurately<br>Cutting, shaping and forming materials to tolerance<br>Planning the cutting of materials to minimize waste.<br>Selection of the correct hand tools and machinery |

