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| **Curriculum Intent:**  Design Technology is an inspiring, rigorous, and practical subject that prepares students for the world in the 21st century and industry. At the Dorcan Academy we aim to encourage students to develop innovative solutions to solve problems using the iterative design process. Through rich and powerful subject knowledge, students are taught to deploy a range of materials, techniques, and processes to strategically evolve prototypes that suit the requirements of the intended user.  We aim for all our students to become rounded learners, i.e., promoting personal responsibility, resilience and independence within the workshops and encouraging experimentation in their portfolios to develop depth of subject knowledge and practical skills which will provide students with pathway opportunities into further education and industry. | |
| **Subject Specific Skills:**  **Identify, Investigate & outline design possibilities**   * To identify design possibilities, investigate client needs and wants and factors including economic and social challenges. * Research using primary and secondary sources to draw accurate conclusions and develop informed designs. * To produce a design brief and specification.   **Design & Make Prototypes**   * To demonstrate flair and originality by exploring a range of possible innovative ideas linking to the contextual challenge set. * Develop and refine ideas using various drawing styles, modelling and CAD. * Create prototypes using a range of materials, techniques and processes including CAM/CNC.   **Analyse & Evaluate**   * To analyse and evaluate their work throughout to improve outcomes. * Undertake a range of tests to formulate the final evaluation. | **Wider Key Skills:**   * Examination Techniques * Evaluate Key Concepts * Independent Learning * Problem solving * Resilience * Proof-reading * Critical thinking * Independent enquiry * Reflective learning * Creative thinking * Self-management * Time management * Arithmetic and numerical computation * Handling data * Graphs * Geometry & Trigonometry * Science links |

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| **Year Group: 7** | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Topic** | **Personalised Storage Box** | **Personalised Storage Box** | **Personalised Storage Box** | **Personalised Storage Box** | **Healthy Eating** | **Healthy Eating** |
| **Key Content/ Knowledge** | * Design Process * Research * Designers * Design Specification * Design development | * CAD * Working with hand tools | * Electronics * Working with hand tools | * Assembling * Testing * Evaluating | * Food Safety * Principles of Nutrition * Food Commodities: Fruit and Vegetables   Fish  Fats and Oils  Bread | * The Science of food * Cooking and Food preparation. |
| **Skills Covered** | Client profiling  Task analysis  Primary & Secondary research  Designing  Presentation skills  3d Drawing  Design influence | 2d design  Laser cutting  Using MDF & Plywood  Measuring & Cutting  Hand saws  Working within tolerances  Sanding  Finishing | Electric circuits  Soldering  Measuring & Cutting  Hand saws  Working within tolerances  Sanding  Finishing | Glue gun  PVA Use of clamps  Assembling using quality checks and controls  Finishing techniques  Reflection  Analysing  Extended writing | Weighing  Measuring  Knife Skills  Prepare, combine & Shape  Select and use of equipment. | Select and adjust cooking process.  Preparation of ingredients and equipment.  Test for readiness.  Judge and manipulate sensory properties. |
| **Assessment** | Cumulative Assessment | Cumulative Assessment | Cumulative Assessment | Summative  Written Assessment | Baseline Assessment Formative Assessment | Summative Assessment |
| **Tier 2 and 3 Words** |  | | | | | |

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| **Year Group: 8** | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 4** | **Term 6** |
| **Topic** | **Personalised**  **Desk Lamp** | **Personalised**  **Desk Lamp** | **Personalised**  **Desk Lamp** | **Personalised speaker** | **Diet & good health** | **Diet & good health** |
| **Key Content/ Knowledge** | * Design Process * Research * Designers * Design Specification * Design development | * Electronics * Working with hand tools * Electric machines * Components | * Electronics * Working with hand tools * Electric machines * Components | * Personalising * Assembling * Testing * Evaluating | * HACCP * Nutrition – Macro and Micronutrients * The Eat well Guide * Food Commodities:   Meat  Dairy Products  Pasta | * Food Science * Food Provenance * Cooking and food preparation. |
| **Skills Covered** | Client profiling  Task analysis  Primary & Secondary research  Designing  Presentation skills  3D Drawing  Design influence | Electric circuits  Soldering  Measuring & Cutting  Hand saws  Working within tolerances  Sanding  Varnishing | Electric circuits  Soldering  Measuring & Cutting  Hand saws  Working within tolerances  Sanding  Varnishing | Using adhesives  Use of clamps  Assembling using quality checks and controls  Finishing techniques  Reflection  Analysing  Extended writing | Accurate weighing and  Measuring.  Knife Skills  Tenderise and Marinate  Preparation of ingredients and equipment. | Select and adjust cooking temperatures and process.  Test for readiness.  Judge and manipulate sensory properties. |
| **Assessment** | Cumulative Assessment | Cumulative Assessment | Cumulative Assessment | Summative  Written Assessment | Baseline Assessment Formative Assessment | Summative Assessment |
| **Tier 2 and 3 Words** |  | | | | | |

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| **Year Group: 9** | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Topic** | **Drawing Techniques** | **Pop-Up Bok** | **Pop-Up Book** | **Pop-Up Book** | **Maze** | **Maze** |
| **Key Content/ Knowledge** | * 2d drawing * 3d drawing * Perspective Drawing * Tools & equipment * Health & safety | * Movement & motion * Levers * Linkages * Forces & stresses | * CAD Design Software Intro * Designing * Modelling * Manufacturing | * Designing * Modelling * Manufacturing | * Design * Development * Working with constraints | * Workshop skills * Making * Evaluating * Modifying |
| **Skills Covered** | Freehand  Isometric  Orthographic  Crating  1 point perspective  2-point perspective  Rendering | Enquiry  Reflecting  Justifying  Initial ideas/modelling  Measuring/accuracy  Experimenting with techniques and processes  Evaluating | CAD  CAM  Handling papers and boards  Pop up materials, tools, techniques, and processes  Quality Assurance  Construction  Assembly | CAD  CAM  Handling papers and boards  Pop up materials, tools, techniques, and processes  Quality Assurance  Construction  Assembly | Initial ideas – designing maze  Evaluating & modifying  CAD/CAM  Measuring  Marking  Cutting  Assembling | CAD  CAM  Handling timbers, working with tools, techniques and processes that require the use of saws, drills, vices, various components, and adhesives.  Quality Assurance  Construction  Assembly |
| **Assessment** | Formative  Written Assessment | Cumulative Assessment | Cumulative Assessment | Cumulative Assessment | Cumulative Assessment | Summative  Written Assessment |
| **Tier 2 and 3 Words** |  | | | | | | |

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| **Year Group: 10** | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Topic** | **Core Technical Principles** | **Core Technical Principles** | **Specialist Technical Principles** | **Mock NEA** | **Mock NEA** | **NEA** |
| **Key Content/ Knowledge** | * New & emerging technologies * Energy generation & storage * Development in new materials * Systems approach to designing | * Mechanical devices * Materials * Working properties of materials * Scale of production | * Selection of materials and components * Forces & stresses * Ecological & social footprint * Sources & origins * Stock forms & types * Specialist techniques & processes * Surface treatments & finishes | (Making Lamps, incorporating all material areas)   * Produce design brief * Generate a design specification * Generate ideas * Ongoing research * Experiment using a range of techniques | (Making Lamps, incorporating all material areas)   * Developing designs * Realise design ideas * CAM/CNC * Materials and their properties * Tolerances * Construction * Assembly   . | * Produce design brief * Generate a design specification * Generate ideas * Ongoing research * Experiment using a range of techniques |
| **Skills Covered** | Exam revision & preparation  Multiple choice questions  Extended writing | Exam revision & preparation  Multiple choice questions  Extended writing | Exam revision & preparation  Multiple choice questions  Extended writing | Enquiry  Reflecting  Justifying  Initial ideas/sketching  Experimenting with techniques and processes | 2d drawing  3d drawing  Presentation  Rendering  CAD skills  Prototyping  Making and finishing  Quality checks & Controls | Enquiry  Reflecting  Justifying  Initial ideas/sketching  Experimenting with techniques and processes |
| **Assessment** | **Cumulative Assessment** | **Cumulative Assessment** | **Cumulative Assessment** | **Cumulative Assessment** | **Summative Written Assessment** | **Formative**  **Written Assessment** |
| **Tier 2 and 3 Words** |  | | | | | |

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| **Year Group:** | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Topic** | **NEA** | **NRS** | **Core Technical Principles – Revision** | **Core Technical Principles - Revision** | **Specialist Technical Principles - Revision** |  |
| **Key Content/ Knowledge** | * Developing designs * Realise design ideas * CAM/CNC * Materials and their properties * Tolerances * Construction * Assembly | * Testing * Refining * Modifying * Evaluating | * New & emerging technologies * Energy generation & storage * Development in new materials * Systems approach to designing | * Mechanical devices * Materials * Working properties of materials * Scale of production | * Selection of materials and components * Forces & stresses * Ecological & social footprint * Sources & origins * Stock forms & types * Specialist techniques & processes * Surface treatments & finishes |  |
| **Skills Covered** | 2d drawing  3d drawing  Presentation  Rendering  CAD skills  Prototyping  Making and finishing  Quality checks & Controls | Developing  Critical thinking  Reflection  Analysing  Extended writing  Comparison  Justifying & Linking  Design  Procedural text  Discussion Recount | Exam revision & preparation  Multiple choice questions  Extended writing | Exam revision & preparation  Multiple choice questions  Extended writing | Exam revision & preparation  Multiple choice questions  Extended writing |  |
| **Assessment** | Summative Written Assessment |  | Past papers | Past papers | Past papers |  |
| **Tier 2 and 3 Words** |  | | | | | |