# Design & Technology

**Our intent:** In Design & Technology we provide a broad curriculum which engages and develops students in an evolving program of experiential learning. Through these experiences typically students develop skills in problem solving, critical thinking, confidence with equipment and machinery, health and safety, designing, innovation, planning, and manufacturing. While gaining these skills students gain a deep technical knowledge and understanding of theory which underpins not only our subject but preparing them for the wider world.

| Year | Half Term | Content |
|---|---|---|
| 7 | a) | **Mechanisms:** To understand the how familiar mechanical devices work, linked to GCSE spec: How they produce different types of movement including: linear, reciprocation, rotary , oscillation<br>Levers, including: class 1, 2 and 3 levers; linkages- including: bell crank , reverse motion linkages<br>Cams, including: pear shaped, eccentric (circular) , drop (snail)<br>Cam Followers, including: roller , knife , flat followers; cranks and Sliders; automata and cardboard models; oblique Projection and 3D drawing skills. |
| | b) | |
| | c) | CAD To learn how to use 2D Design software to prepare CADCAM files for laser cutting; page set-up software tool in the software; using relative numbers to measure when drawing; drawing accurately to a tolerance of at least 1mm; drawing measured & accurate lines & angles; dividing lines equally; using CNC machine colour-codes in creation of a 2D drawing aid for laser cutting |
| | d) | |
| | e) | Coat Hook: To be able to understand a brief and write a product specification for the coat-hook including use, materials, environment, design theme and limits; using 3D graphics skills to produce a range of design ideas; annotating the designs with details of materials and manufacturing methods; manufacturing a wooden product using all of the learning so far in Y7. |
| | f) | |
| 8 | a) | Desk Tidy: wood types, growth; introducing the D&T Standards & project assessment scheme<br>To learn about Health & Safety in the workshop |
| | b) | |
| | c) | Robotics: complex circuit components including sensors; use of ICT with cross currciular skills to computing in creation of a flow chart to control their robotic circuit. |
| | d) | |
| | e) | Candle Holder: A complex design and make project where pupils have a set volume of materials which they have to work with to create a final design. Use of metal for the first time, casting aluminium, industrial sand casting. Use of Copper, Brass, and Aluminium. Developing sawing ability and forming of metals with metal filing and detail work. |
| | f) | |
| 9 | a) | Jewellery: Learn about the die-casting process; research existing die-cast pewter jewellery products and the Arts & Craft movement; write a specification for a jewellery product; design a jewellery product influenced by Arts & Craft; use CADCAM to manufacture a die-casting mould; plan the manufacture process; successfully die-cast a design; produce a good surface finish; review & evaluate the product. |
| | b) | |
| | c) | Phone Holder: Expanding on previous CAD work in 2D design, working in a set style to produce nets the Y9 will produce mobile phone holders of their own design. This must work correctly and follow the ergonomics and anthropometrics of the components and user required. Folding using line bending. |
| | d) | |
| | e) | Batch Production Project: To design, plan and batch-produce a batch of 10 identical and high-quality products in three competing teams of around 8 pupils with different roles such as team leader, Engineer, CAD designer, Designer. |
| | f) | |