

**Design and Technology**

**Year 9 Curriculum Explained**

GCSE Design and Technology will prepare students to participate confidently and successfully in an increasingly technological world. Students will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise.

GCSE allows students to study core technical and designing and making principles, including a broad range of design processes, materials techniques and equipment. They will also have the opportunity to study specialist technical principles in greater depth

A Design Technology student will be able to:

1. Design and make products that solve real and relevant problems
2. Consider their own needs, wants and values and other uses needs
3. Design functional and appealing products for themselves and other users
4. Generate, develop and model ideas through talking, drawing and mock ups
5. Develop a variety of ICT skills
6. Select and use a range of tools and equipment to conduct practical tasks in a safe and sensible manner
7. Use a wide range of materials and components including Textiles and ingredients
8. Explore and evaluate a range of existing products
9. Develop links with other subjects such as Maths, Science and Art
10. Use a range of graphic techniques to develop ideas and thinking
11. Understand how key events in Design and Technology have help shape the world
12. Evaluate their own work against design criteria
13. Consider the views of others to improve their work

The curriculum teaches the fundamental ideas which are the building blocks of Design and Technology, and we sequence these in the best order so that students can see how these fundamental ideas link together.

**Links to Knowledge Organisers:**

Timbers and Boards (Resistant Materials)

XXX

Fashion and Textiles

XXX

Visual Communication (Graphics)

XXX

**Design and Technology**

In Year 9, students will remain in their teaching groups with a specialised teacher. They will complete the following Focussed Practical Tasks in order to build up their practical skills and knowledge..

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| --- | --- | --- | --- |
| **Topic/Area** | **Practical Product** | **Key Skills** | **Why they are learning it** |
| Timbers and Boards (Resistant Materials) | Wood skills stick & Theory | **Hardwoods/softwoods****Manmade boards****Rebate Joints** **Housing Joint****Dowel Joint****Comb & Finger Joint****Mortice & Tenon****A variety of finishing techniques.****Assembly** | **Classification of the types and properties of****a range of materials.****Physical properties of materials related to****use and knowledge applied when****designing and making.****To be able to select from and use specialist, tools, techniques, processes, equipment and machinery precisely, including computer aided manufacture** |
| Timbers & Graphics | Head Phone Wrap | **How to work to a brief****How to write a specification****One point perspective drawing****Rendering skills****Design Ideas****Marking out and making skills****Packaging, logos and symbols** | **To be able to test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users.****To develop and communicate design ideas using annotated sketches, detailed plans and computer based tools.** |
| Plastic/Metals | Skills stick  | **Cutting & Shaping Acrylic.****Line Bending****Vacuum Forming****Shaping Metals.****Block punching****Engraving****Riveting****Finishing****Theory -*thermoforming* including:****• acrylic (PMMA)****• high impact polystyrene (HIPS)****• high density polythene (HDPE)****• polypropylene (PP)****• polyvinyl chloride (PVC)****• polyethylene terephthalate (PET)*****Thermosetting* including:****• epoxy resin (ER)****• melamine-formaldehyde (MF)****• phenol formaldehyde (PF)****• polyester resin (PR)****• urea-formaldehyde (UF).****Developments in new materials:****Modern & Smart Materials****Composite Materials** | **Classification of the types and properties of****a range of materials.****Physical properties of materials related to****use and knowledge applied when****designing and making.****To be able to select from and use specialist, tools, techniques, processes, equipment and machinery precisely, including computer aided manufacture** |
| Multi Media | Shoe desk Tidy | **Hand shaping materials****Pattern Making****Stitching skills****CAD/CAM****Applique****Fibres and materials** | **To be able to select from and use specialist, tools, techniques, processes, equipment and machinery precisely, including computer aided manufacture** |
| Electronics | Nightlight | **Components****Circuits****Circuit Symbols****Soldering****The use of light sensors, temperature sensors,****pressure sensors and switches.** |  |
| Graphics | Drawing& SketchingSkills | **freehand sketching, isometric and** **perspective****2D and 3D drawings****system and schematic diagrams****annotated drawings that explain detailed****development or the conceptual stages of****designing** **exploded diagrams to show constructional****detail or assembly** **working drawings: 3rd angle orthographic,****using conventions, dimensions and drawn to****scale** | **To have an overview of the main****categories and types of papers and boards:****papers including:****• bleed proof****• cartridge paper****• grid****• layout paper****• tracing paper****boards including:****• corrugated card****• duplex board****• foil lined board****• foam core board****• ink jet card****• solid white board**. |