

Design and Technology: Year 10 Curriculum

Students will know and remember...

Health and safety (rule of law), ppe, professional practice
 New and emerging technologies (inc CAD/CAM)
 Industry and enterprise
 People, culture and society
 Sustainability and the environment
 Production techniques and systems
 Informed design decisions
 Exploring design contexts
 Design criteria: function, aesthetics, ergonomics, user requirements
 Iterative designing (SCAMPER) and modelling
 Energy generation and storage
 Modern materials, smart materials and composites
 Systems and design
 Electrical systems
 Mechanical devices
 Materials and their properties
 Forces and stresses
 Ecological and social footprint - life cycle analysis and the 6 R's
 Scales of production
 Timber

- Sources and properties
- Working characteristics
- Commercial manufacturing
- Surface treatments and finishes

Making principles

- Selection of materials and components
- Tolerances and allowances
- Material management and marking out
- Specialist tools, equipment, techniques and processes
- Surface treatments and finishes

So that they can...

Use iterative modelling techniques
 Use CAD/CAM/CNC
 Apply and use perspective drawing
 Use iterative sketching
 Identify and apply formal drawing techniques
 Render
 Analyse and evaluate their work and that of others
 Measure and mark out precisely
 Check dimensional accuracy and tolerance
 Use hand tools
 Use the pillar drill
 Use the belt sander
 Use the lathe
 Use production aids
 Use power tools safely and effectively
 Form materials
 Prepare for and apply finishes to materials

Construction: Year 10 Curriculum

Students will know and remember...

History and purpose of construction
 Scope and scale of the construction industry

- Sectors
- Construction activities

Health and safety law relevant to construction
 Construction materials

- Timber - classification, origins and sustainability

Measurement
 Performance requirements of buildings

- Strength and stability
- Sound insulation
- Thermal insulation
- Fire resistance
- Weather resistance
- Sustainability

Common structural forms
 Substructure: groundworks and foundations
 Superstructure: floors, walls and roofs
 Applying science to construction

- Forces and stresses
- Gravity and turning forces
- Hooke's law
- Construction materials and their properties

Applying math's to construction

- Area/surface area
- Volume
- Formula and equations
- Trigonometry
- Using graphs

Designing buildings for people

- Design considerations - planning permission
- Function and form

So that they can...

Conduct professional practice in the workshop
 Use perspective drawing
 Use Orthographic drawing
 Dimensioning
 Rendering
 Measure and mark out precisely
 Check dimensional accuracy and tolerance
 Use hand tools
 Use the pillar drill
 Use the belt sander
 Wasting materials
 Prepare for and apply finishes to materials
 Apply formulae to perform calculations for area, volume and trigonometry
 Plot graphs
 Research and interpret sources of information
 Analyse the needs of a client
 Write a design brief in response to the needs of a client
 Produce imaginative but realistic design proposals to meet a brief
 Evaluate a design against a specification