

## Curriculum Intent

### Curriculum Vision | Design & Technology

...to develop the students' sense of awareness about the world of design and manufacture that surrounds them.

Dick Powel states Design and Technology is "*the practical application of maths and physics*". We encourage our students to combine practical and technological procedural knowledge with creative thinking to design and make products and systems that meet client requirements. Students need to understand the work of designers and understand the need for greater creativity and sustainability.

The students' reading is developed and supported throughout lessons and with their wider research.

The development of this procedural knowledge ensures that independent learning is enhanced and that the self-esteem of the students is raised. Implicit within this is the sense of enjoyment and achievement that the students feel throughout the learning process.

Numeracy is a core element of Design and Technology and we develop the students' ability to apply their mathematical knowledge in real-life situation.

We provide the students will a core foundation of subject specific knowledge and understanding and develop key transferrable skills.

### All students

We will encourage the students to become ethical and responsible designers who are aware of the impact that products have on the wider world and exploring a range of cultural and historical influences. They will develop and broaden the 6 core areas of procedural knowledge and the use of technical knowledge:

- **Investigate:**
- **Design:**
- **Develop:**
- **Realise:**
- **Analyse:**
- **Evaluate**

### Successful navigation of the subject within the world

All students have the opportunity to work with a range of materials and processes including food, nutrition, textiles, wood, plastics, graphics, electronics and Computer Aided Design in their project-based learning. They have the opportunity to explore the environment of a workshop and its machinery & how to prepare savoury dishes and safe working practices. They will produce more complex working outcomes with greater independence and build on and develop these areas of procedural knowledge each year in more complex tasks. This will prepare them for further study in Design and Technology related field and apply their transferrable skills to future careers. For example students will be able to give examples of how they have managed projects, communicated with others, solved problems, evaluated and analysed situations.

# The Knatchbull Baccalaureate – Academic

## MY DESIGN & TECHNOLOGY JOURNEY

**D&T Optional Extras Tasks**  
Monthly enrichment opportunities to stretch and challenge their DT curriculum.



**Core theory specialist knowledge:** Exam technique, and mock exam papers. Information retrieval techniques.



**A LEVEL Selection**  
**EXAM FINAL EXAM**



**GCSE Selection**  
**Technical Knowledge Unit 5- Materials**



**YEAR 8**  
**Food & Nutrition Foundation skills, nutrition theory**



**YEAR 7**  
**Base line assessment**

**Theory and exam practice**

**YEAR 12**

**YEAR 11**

**YEAR 10**

**YEAR 9**

**YEAR 8**

**YEAR 7**

**YEAR 7**



**E: Realising ideas:** Manufacturing your product using a range of skills and processes.



**C: Generating & Develop Ideas:** Develop your ideas through sketches and models communicating ideas.

**B: Specification** Developing a brief and specification for your product.



**A: Investigate** Profiling users, analysing products, gathering research data.

**NEA Design & Make**

**Technical Knowledge** All units to be covered

**YEAR 13**

**Start NEA Design & Make**

**F: Evaluate & Test:** Reflecting on how your product meets your design brief and specification through practical testing.

**D: Modelling** Modelling, testing and defining a manufacturing plan

**Investigate possibilities:** What is the design context? What research can you carry out to gather ideas?.

**A-Level Base line assessment**

**Technical Knowledge** All units to be covered

**Focused Practical Tasks- gap analysis**

**Mini Projects- Brazing & Turning**

**Year 12 PPE**

**Modelling:** Develop your design through iterative modelling.

**Social, Moral, Economic and Environmental factors:** Investigating into the influences on product design.

**Sustainability:** Environmental and moral needs of product design.

Learning about foundation principles in the design and manufacture of products for specific users.

**Technical Knowledge** All units to be re-covered

**Year 11 PPE**

**NEA DESIGN & MAKE**

**YEAR 11**

**Technical Knowledge** All units to be covered

**DESIGNER LIGHT** Anglepoise lamp

Experience of multiple material areas with associated skills and theory.

**CAD:** Develop independence in CAD using 3D design software to make complex design ideas

**Re Visit Materials:** Working and physical properties and joining materials.

**Iterations** Developing a wide range of designs.

**Manufacturing:** Concrete casting, materials theory, routers, jigs and many more!

**Resistant Materials:** Manufacturing a mixed material product for a key user.

Broadening knowledge of materials and mechanisms. Project in year 8 build on the foundations of year 7, but increase the fluency of skill and design. A greater depth of knowledge is required, and more theoretical concepts are introduced.

**Technical Knowledge** Unit 5- Materials

**CAD:** Assembling parts together, creating orthographic drawings and 3D printing.

**GCSE base line assessment**

**CLOCK PROJECT** Zaha Hadid & Thomas Heatherwick

**Testing & Planning:** Using modelling techniques to test and trial ahead of manufacture

**Pizza Cutter** Ergonomics, anthropometrics, modelling & drawing skills

**YEAR 10 PPE**

**Design:** Mastering Isometric and rendering skills, iterating designs.

**Technical Knowledge** Unit 5- Materials

**CAD CAM** On shape 3D Printing

**Design Theory:** Inspired by key design movements, and iconic designers.

**Pewter Casting** Techniques & processes, Biomimicry, CAD

**Materials:** Working and physical properties and joining materials.

**Skills Sticks** Practical skills, tools

**YEAR 9**

Learning about foundation principles in the design and manufacture of products for specific users.

**Design:** Inspirations, analysis and specification creation.

**Monster Desk tidy** Design, develop realise & evaluate

**Food & Nutrition** Foundation skills- practical

**Sustainability:** Food waste fuel school compost

**Electronics:** Circuits, components, soldering, resistance theory.

**Processes:** Manufacturing in timbers, metals & plastics

**Systems and control** Embedded intelligence in products

Experience of multiple material areas with associated skills and theory. Introduction to practical tasks and workshop areas.

**Food & Nutrition** Foundation skills, nutrition theory

**Motions, movements & levers:** How things move, and mechanical advantage.

**Materials categories & classifications:** Plastics, timbers, metals, paper & board.

**Design:** Designing for users, application and development of enhancement skills.

**Health & Safety:** Workshop introductions.

**Communication skills:** 3D drawings, enhancement.

**Model:** Using card to model complex structures, and present ideas.

**Structures** Investigate, test & Evaluate

**The work of others:** Investigating influential designers and their work.

**Computer Aided Design:** Begin to master 2D CAD, experiment with 3D.

**Technical Knowledge:** Unit 4 Commercial Principles- Timbers, 6RS Sustainable design.

**Sustainable water bottle** Design & Analysis

**Design skills.** Communicating and presenting ideas.

**Baseline Assessment:** Gauging and then banding prior learning.

**Welcome!** Settling in, equipment and group identity.

