



## Curriculum Intent

The focus of Design and Technology is to enable students to approach ideas in both a literal and lateral manner, providing them with the skills to effectively communicate ideas, designs and processes in a professional manner to industry standard. Students will use their knowledge of Maths and Science and apply it to their work to create both their own designs as well as a commercially viable product. Students will be introduced to a varied diet of tools and machinery that is commonplace in the design industry, developing skills which will eventually allow them to complete GCSE projects.

## Autumn: Specialist Wood Theory

### Students will learn:-

In addition to the core technical principles, all students should develop an in-depth knowledge and understanding of the following specialist technical principles:

- selection of materials or components
- forces and stresses
- ecological and social footprint
- sources and origins
- using and working with materials
- stock forms, types and sizes
- scales of production
- specialist techniques and processes

### What does excellence look like?

- Students to be able to display their specialist knowledge both in the NEA and exam papers (prelim and GCSE).
- Students are able to pull upon knowledge to answer questions either in exams or through questioning in lesson.

### How is homework used to enhance learning?

Students are provided differentiated theory activities and theory related homework.

-Students are provided graded exemplars for most activities.

-Students are provided assessment criteria's for assessment activities in booklets.

-Lunch time and afterschool clubs are encouraged to further aid students on a one to one basis.

H/W – further research (developing research and extended writing skills)

Practice exam questions relating to the core theory knowledge.

### Knowledge, Understanding & Skills

- Know
- 3.2.1 Selection of materials or components.
- Functionality: application of use, ease of working. Aesthetics: surface finish, texture and colour.
- Environmental factors: recyclable or reused materials.
- Availability: ease of sourcing and purchase. Cost: bulk buying. Social factors: social responsibility. Cultural factors: sensitive to cultural influences.
- Ethical factors: purchased from ethical sources such as FSC.
- Deforestation, mining, drilling and farming.
- Mileage of product from raw material source, manufacture, distribution, user location and final disposal.
- That carbon is produced during the manufacture of products.
- Primary sources of materials and the main processes involved in converting into workable forms for at least one material area.
- Timber based materials (seasoning, conversion and creation of manufactured timbers).
- Students must know and understand how different properties of materials and components are used in commercial products, how properties influence use and how properties affect performance.
- Students must know and understand the physical and mechanical properties relevant to commercial products in their chosen area as follows.
- Timber based materials (traditional timber children's toys and flat pack furniture)
- The modification of properties for specific purposes
- Seasoning to reduce moisture content of timbers.
- Stock forms:
- Timber based materials: planks, boards and standard moldings, sold by length, width, thickness and diameter
- Standard components e.g. woodscrews, hinges, KD fittings.

### How will we assess impact?

- Assessment homework.
- Prelims
- Practice exam questions
- Differentiated activities.



## Students will learn:-

Student to complete their NEA based on the AQA contexts provided in September.

- Research
- Design
- Prototyping
- Make
- Evaluation

Students to create a final prototype through an iterative design process.



## How is homework used to enhance learning?

- Support material created
- Exemplars provided by AQA
- Previous support material.
- AQA support material.

## Knowledge, Understanding & Skills

Students will understand how to:

- Research effectively to gain a full understanding of the context, client and design influence.
  - Able to design effectively considering both 2D and 3D shapes. Displaying Iterative strategies, shows design influence.
  - Ability to use previous practical knowledge to create a fully finished product.
- Reflect and evaluate product, considering and carrying out testing. Objective reflections and considered modifications.

## What does excellence look like?

Use all skills obtained above and in KS3 to create to complete NEA project.



## How will we assess impact? (3D)

NEA is assessed using AQA marking guidelines.

## International Opportunities

### Within the curriculum

- Students explore different types of softwood and hardwoods and where these originate from around the world, looking at the different climates needed to grow these species.
- The research of Fairtrade products to help producers in developing countries is explored with practical examples.
- Manufacturing systems, such as Just-In-Time which often relies on the import of goods from around the world is studied.
- The investigation of metals and other materials and their origins and mining is explored as part of the topics covering materials properties.
- Environmental sustainability of the products we design and manufacture is investigated in relation to the impact on climate change and our planet. We look at the pollution of plastics in our oceans across the world and the detrimental impact on our planet.
- Students learn about the work of others, investigating international companies, such as Apple, Braun and Alessi. They also explore various designers from around the world, including Philippe Starck, Ettore Sottsass, Aldo Rossi, Gerrit Rietveld, amongst others.
- Students explore design movements which originated in various countries, such as the Bauhaus movement and De Stijl.
- As part of the Non-exam Assessment, students are encouraged to investigate different cultures and designers to develop their own ideas, as well as exploring crafts and traditional methods from other parts of the world.