Subject: GCSE Design and Technology

Year: 10

Autumn Term

In- depth knowledge Textiles.

- Sources, origins and working properties of the material categories or the components and systems, and their ecological and social footprint
- The way in which the selection of materials or components is influenced by a range of factors such as function, aesthetic, environmental, availability, cost, social, cultural and ethical.
- The impact of forces and stresses on materials and objects and the ways in which materials can be reinforced and stiffened
- Stock forms, types and sizes in order to calculate and determine the quantity of materials or components required
- Alternative processes that can be used to manufacture products to different scales of production

Textiles Specialist techniques and processes:
that can shape, fabricate, construct and assemble a high-quality prototype from textile materials (hoodie), including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used including:

- Introduction to hoodie research, design and make
- Use of textiles tools and equipment
- CAD design of logo
- Preparation of fabric, marking out, pattern cutting and lay plan
- Construction methods

Appropriate surface treatments and finishes that can be applied for functional and aesthetic purposes

- Experimentation of a range of surface treatments including; dyeing, printing, block printing, transfer printing, fabric painting, embroidery, applique

Spring Term

In-depth knowledge Timber

- Sources, origins and working properties of the material categories or the components and systems, and their ecological and social footprint
- The way in which the selection of materials or components is influenced by a range of factors such as function, aesthetic, environmental, availability, cost, social, cultural and ethical.
- The impact of forces and stresses on materials and objects and the ways in which materials can be reinforced and stiffened
- Stock forms, types and sizes in order to calculate and determine the quantity of materials or components required
- Alternative processes that can be used to manufacture products to different scales of production

Timber Specialist techniques and processes:
that can shape, fabricate, construct and assemble a high-quality prototype from timber (storage box), including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used including:

- Introduction to storage research, design and make
- Use of hand tools and equipment
- Design of pattern
- Joining methods
- Preparation materials, marking out, cutting
- Construction methods

Appropriate surface treatments and finishes that can be applied for functional and aesthetic purposes

- Experimentation with surface treatments and finishes including: varnish, stains and preservative paints.

Summer term

Core Technical Principles

- Design and Technology in Our World
- Smart materials, composites and technical textiles
- Electronic systems and programmable components
- Mechanical components and devices
- Materials

Design and Making Principles

- Understand that all design and technological practice takes place within contexts
- Identify and understand client and user needs through the collection of primary and secondary data
- Demonstrate an ability to write a design brief and specifications from their own and others considerations of human needs, wants and interests
- Investigate factors, such as environmental, social and economic challenges, in order to identify opportunities and constraints that influence the processes of designing and making
- Explore and develop their ideas, testing, critically analysing and evaluating their work in order to inform and refine their design decisions thus achieving improved outcomes
- Investigate and analyse the work of past and present professionals and companies in the area of design and technology in order to help inform their own ideas.
- Use different design strategies, such as collaboration, user centred design and systems thinking, to generate initial ideas and avoid design fixation
- Develop, communicate, record and justify design ideas

Mock 1 revision
Core Technical Principles:

- Design and Technology in Our World
- Mechanical devices
- Smart, Composite and Technical Textiles
- Materials
- CAM devices

In-depth Textiles knowledge
In depth Timber knowledge

Introduction to NEA

- Identifying and investigating design possibilities
