



## Highsted Knowledge Organiser

### Year 11 Design & Technology – Terms 1 – 4 NEA (Non-Exam Assessment)

#### What I need to know

Assessment objectives:

**AO1:** Identify, investigate and outline design possibilities to address needs and wants.

**AO2:** Design and make prototypes that are fit for purpose.

**AO3:** Analyse and evaluate:

\* design decisions and outcomes, including for prototypes made by themselves and others

\* wider issues in design and technology.

**AO4:** Demonstrate and apply knowledge and understanding of:

\* technical principles

\* designing and making principles.

#### Key Vocabulary

Industry, enterprise, sustainability, people, culture, society, environment, production techniques and systems, how the critical evaluation of new and emerging technology informs design decisions, energy generation and storage, fossil fuels, nuclear power, renewable energy, energy storage systems, including batteries, developments in new materials, modern materials, smart materials, composite materials, technical materials, systems approaching to designing, inputs, processes, outputs, mechanical devices, different types of movement, changing magnitude and direction of force, materials and their working properties, material properties, papers and boards, natural and manufactured timbers, metals and alloys, polymers, textiles.

#### Student reference point

##### Brief:

Practical application of:

- Core technical principles
- Specialist technical principles
- Designing and making principles

Assessment objectives:

- Identifying and investigating design possibilities
- Producing a design brief and specification
- Generating design ideas
- Developing design ideas
- Realising design ideas

Analysing & evaluating

The NEA makes up 50% of your Design Technology GCSE. You will produce a prototype and a portfolio of evidence. Core technical principles will be covered as well as specialist technical principles. You will also demonstrate mathematical and scientific knowledge and understanding, in relation to Design Technology.

Core Technical Principles:

- new and emerging technologies
- energy generation and storage
- developments in new materials
- systems approach to designing
- mechanical devices
- materials and their working properties.

**Techniques:** You will develop an in-depth knowledge and understanding of:

- 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
- surface treatments and finishes.

Choosing from the following categories:

- papers and boards
- timber based materials
- metal based materials
- polymers
- textile based materials
- electronic and mechanical systems.

You will demonstrate and apply knowledge and understanding, making principles in relation to the following areas:

- investigation, primary and secondary data
- environmental, social and economic challenge
- the work of others
- design strategies
- communication of design ideas
- prototype development
- selection of materials and components
- tolerances
- material management
- specialist tools and equipment
- specialist techniques and processes

Being critical and using the Highsted Design Technology framework.

Understand the assessment criteria of the exam board: AQA.

Working independently exploring scale, 2D design, visual language.

Realising a finished working product, developing a concept and working to a brief.

Self and Peer assessment through discussion.

**Challenge question.**

- How will you present a high-quality bag?
- What impact on the environment does polypropylene have?
- Is sublimation printing the most environmentally friendly printing method – what are the pros and cons of using this method?

**Suggested reading**

- [Home - Design Museum](#)
- [GCSE Design and Technology - AQA - BBC Bitesize](#)