

Design & Technology Learning Journey

BE BOLD, BE BRAVE, BE BRILLIANT

Work Experience

GCSE Written Exam

Key: Contextual Knowledge Depth of Knowledge **TEXT** The Big Question **TEXT**

College? 6th Form?

Post 16 Choices

Apprenticeship?

Non Exam Assessment



Exam Theory

- Design strategies
- Material properties & finishes Standard components/stock forms
- Designers and their work
- **Environmental & social impact**

Mock NEA



- Mechanical systems **CONCLUDE**
 - Textiles & new materials.
- Independent design project, which responds to a real-world problem.
- Pupils consolidate learning from key stage three and implement a thoughtful, progressive design journey, realising a working prototype.

PROVE

MODIFY

CONNECT

9.2 Does weight compromise strength?

9.1 Can you wear technology?



- Smart materials
- Electronic components & circuits
- Ethical & environmental issues
- Fast fashion and Fair Trade
- **Design Companies & designers**
- User -centered design

Smart materials and interactive technology in an ever changing world.

YEAR



YEAR

Material properties for manufacturing

CAD/CAM processes

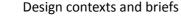
ASSESS

RECALL

- Manufacturing processes
- **Product Design and Robotics**
- Visual and technical communication.

8.1. Should We Sleep In The Dark?

8.2 Can products rescue humans?



- Empathy mapping & client interviews
- Metals & material properties
- **NETS** for manufacture
- Electronic circuits & LEDs.
- Forming, shaping & cutting sheet materials

Designing for needs. How can design improve mental health?

Collaborative working practices

- Designing for the real world
- Context mapping & investigation
- Design iteration through sketching
- Laser cutting & Vacuum forming
- Graphics and material finishes
- Analysing & evaluating

Disaster Relief & Community Aid. How do we support recovery through design?

YEAR

DESIGN MUSEUM



7.1 What can pewter do?

DESCRIBE EXPLAIN

INTERPRET

Explore Eco Design means and why it is so

- Defining a products life cycle.
- How do the 6 R's can contribute to a more eco friendly design and make process?
 - **NETS & Mathematical processes**

Can we make our world more environmentally

Health & Safety / Risk Assessments Explore material types and scales of

Do we need to manufacture the same amount for everything?

To begin the design process and avoid 'design fixation'.

CAD & CAM processes

What do designers do all day?

important in an ever changing world.

CAD & CAM manufacturing

Prototyping & card modelling

friendly?

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World Class	Good	Could be Better	Needs Improvement	Level 0
You have used a range of research skills to identify the needs and wants of your target market, brief and/or client. It is purposeful & effective	You have used research skills to identify the needs and wants of your target market but it lacks complexity and depth.	You have used some effective research skills in order to identify and the needs of your client or brief	You have attempted some research in order to identify and the needs of your client or brief	No evidence

AO2: Design & Make

Design & make prototypes and models that are fit for purpose

World Class	Good	Could be Better	Needs Improvement	Level 0
Imaginative ideas have been generated with consideration of functionality, aesthetics and innovation. Effective use of design strategies i.e sketching/prototypes.	Ideas have been generated that take some account of investigations carried out but may lack relevance and/or focus. Effective design strategies are evident.	Basic ideas have been generated with some design fixation and limited consideration of functionality, aesthetics and innovation.	Some ideas have been generated using a single design strategy, i.e sketching.	Little or no Ideas generated.

A03: Evaluate

Analyse and evaluate design decisions and outcomes

World Class	Good	Could be Better	Needs Improvement	Level 0
Good evidence that iterations are as a result of testing, analysis and evaluation. Some consideration of feedback. Evaluating against the design brief and specification.	Some evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype, including basic consideration of feedback from third parties.	Limited evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype.	Superficial analysis and evaluation. Little influence on the design brief and the design and manufacturing specifications.	No evidence of analysis or evaluation.

A04: Technical Knowledge

Technical understanding of making principles and knowledge

World Class	Good	Could be Better	Needs Improvement	Level 0
Tools, materials and equipment have been used safely . A prototype of sufficient quality has been produced that may have potential to be commercially viable,Further developments required.	Tools, materials and equipment have been used or operated safely at a basic level. Basic quality control is evident through measurements. Prototype shows a basic level of making/finishing skills.	Prototype or product shows a basic level of making/finishing skills which may not be appropriate for the desired outcome. Does not meet the needs of the client/user.	A prototype or product of basic quality has been produced with little or no potential to be commercially viable and does not meet the needs of the client/user.	No evidence

A01

A01

DA 1 - develop detailed design specifications to guide their thinking

to guide their thinking
DA 2 - use research including the study of
different cultures, to identify and understand

user need DA 3 - identify and solve their own design problems.

DB 1 - use 2D and begin to use 3D CAD

packages to model their ideas
DB 2 - produce models of their ideas using
CAM to test out their ideas

A02

MA 1 - produce ordered sequences and schedules for manufacturing products they design, detailing resources required

MA 2 - produce costings using spreadsheets for products they design and make

MB 1 - make use of specialist equipment to mark out materials

MB 2 - use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives MB 3 - use CAD/CAM to produce and apply surface finishing techniques, for example using dye sublimation

A03

EA 1 - evaluate their products against their original specification and identify ways of improving them EA 2 - actively involve others in the testing of their products.

EB 3 - products that they are less familiar with using themselves

EB 4 - products considering life cycle analysis

EB 5 - how products can be developed considering the concept of 'cradle to grave'

EB 6 - the concept of circular economy approaches in relation to product development and consumption

A04:

TK 1 - how to classify materials by structure e.g. hard words, soft woods, ferrous and non- ferrous, thermoplastic and thermosetting plastics
TK 2 - about the physical properties of

TK 2 - about the physical properties or materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal

TK 3 - how more advanced electrical and electronic systems can be powered and used in their products

TK 4 - how to use simple electronic circuits incorporating inputs and outputs TK 5 - about textile fibre sources e.g. natural and synthetic and fabrics e.g. plain and woven