



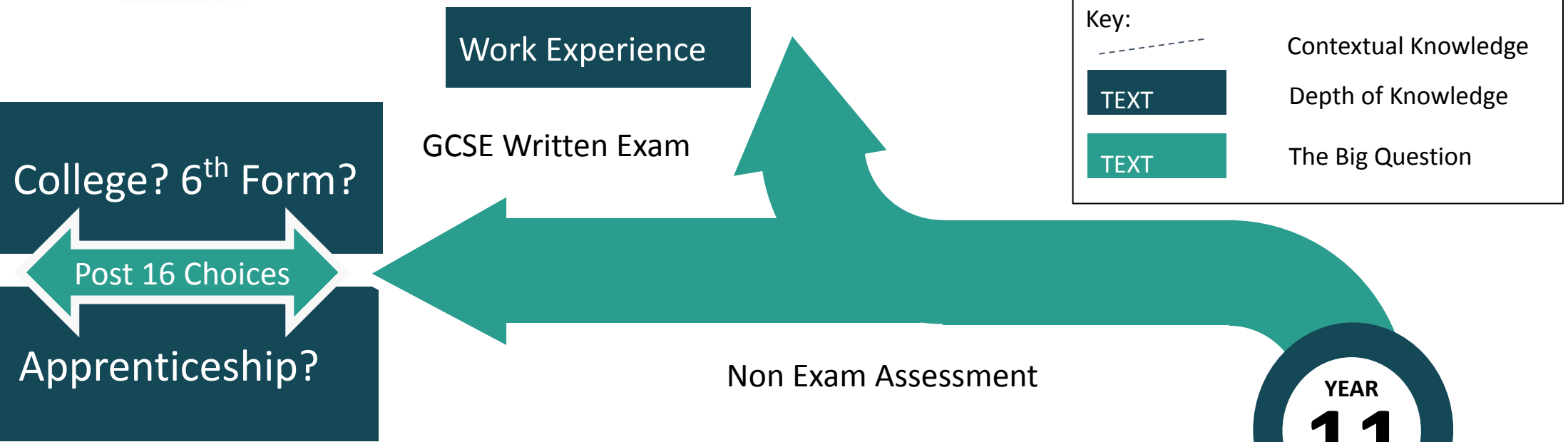
# DESIGN TECHNOLOGY

BE BOLD, BE BRAVE, BE BRILLIANT

# Design & Technology Learning Journey

Key:

- Contextual Knowledge
- TEXT Depth of Knowledge
- TEXT The Big Question



YEAR 10

ASSESS

RECALL

CONCLUDE

ASSESS

RECALL

CONCLUDE

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

CONNECT

MODIFY

Smart materials and interactive technology in an ever changing world.

- 9.2 Can you wear technology?
- Textile fibres & materials
  - Smart materials
  - Electronic components & circuits
  - Ethical & environmental issues
  - Fast fashion and Fair Trade
  - Design Companies & designers
  - User -centered design

- 9.1 What if robots took over the world?
- Design contexts and briefs
  - Automation and AI
  - Material properties & finishes
  - Mechanisms & components
  - Systems thinking design strategy
  - Flow diagrams & algorithms
  - User -centered design

Safeguarding independence in a technologically driven world.

YEAR 8

8.1. Should We Sleep In The Dark?

- Design contexts and briefs
- 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?

8.2 Can products rescue humans?

- 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?



DESCRIBE

EXPLAIN

INTERPRET

- Explore Eco Design means and why it is so important in an ever changing world.
- Defining a products life cycle.
- How do the 6 R's can contribute to a more eco friendly design and make process?
- CAD & CAM manufacturing
- NETS & Mathematical processes
- Prototyping & card modelling

Can we make our world more environmentally friendly?

7.1 What can pewter do?

- Health & Safety / Risk Assessments
- Explore material types and scales of production.
- 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?

YEAR 7

7.2 Can Junk become funk?

## A01: Explore & Research

Investigate, research & Identify the needs and wants of your client or brief

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

## A02: 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**  
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 DA 1 - develop detailed design specifications 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 woods, soft woods, ferrous and non-ferrous, thermoplastic and thermosetting plastics  
 TK 2 - about the physical properties of 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