

DESIGN TECHNOLOGY KS4



Y10 UNIT 1

Maths, EIM

How do I design to meet a user's requirements?
 Who can be a client?
 How can I gather information about my client?
 How do I research my client?
 What are hardwoods and softwoods?
 What is timber and how is it grown responsibly?
 How can I use isometric and other drawing techniques to communicate my designs and ideas?
 How can I safely use hand tools and machines to produce a finished product?
 How can I join timbers using different fixings?
 What is sustainability?
 How can I reuse materials?



RSPB Newtown Creek, Isle of Wight to find out about the features of bird boxes



Bat Doctor to find out about the housing needs of bats

Y10 UNIT 2

Maths

How can I use CAD/CAM to manufacture a quality product?
 What is CAD/CAM?
 How can I use CAD and CAM to model my designs?
 How do I 'plan up' for manufacture to save waste?
 How can I include pre-existing and pre-manufactured items into my design?
 How can I manufacture within a tolerance?
 What is a laser cutter?

YR10

Hampshire and Isle of Wight Wildlife Trust to learn more about the needs of our local wildlife

Local primary school to test our products

Y10 UNIT 3

How can I manufacture a flat pack product?

How can I gather information about a range of users?
 What is a design context?
 How can I use anthropometric data?
 What is an ergonomist?
 What is a scale model or prototype?
 How can I join materials without fixtures and fittings?
 How can I model and prototype my ideas using lightweight materials?
 How can I visualise a three-dimensional object in two dimensions?

CECAMP, East Cowes



IKEA, Southampton



Maths, Science

What is a casting mould?

What is a ferrous and non-ferrous metal?
 What are the properties of metals?
 How can I include surface detail to a cast product?
 How do I prepare a CAD/CAM file for manufacture?
 How can I use PPE to be safe when working with materials?
 How can I use CAD/CAM to produce a 3-dimensional metal outcome?
 What are mould layers?
 How can I ensure a quality of finish on my products?
 What are the qualities of a finished metal product?



Y10 UNIT 3

Art and Design

What modifications can be made to improve the use of an existing product?

What shapes help sound amplify?
 When can I use models and prototypes to test my ideas and designs?
 How do I include information about existing products into the design process?
 What are Art and Design movements?
 How can I refer to/acknowledge Art and Design movements in my designs?
 How can I use modelling/prototyping at 1:1 to show my ideas and designs?
 How can I combine and join materials in 3-dimensions?
 How can I use layers to shape materials and make a 3-dimensional outcome?
 What is a quality of finish for timber?



Y10 UNIT 3

Investigate, Design, Make, Evaluate
 You will respond independently to a design context continuing into Year 11.

YR11

Y11 UNIT 1

Investigate

How can I investigate a design context?

What is a design context?
 Why do I collect information about my client?
 Who is my client?
 What are the needs of my client?
 What problems have I identified within the design context?
 What is primary and secondary research?
 How can I use research to help identify the problems within a design context?



Y11 UNIT 2

Design

What do I do to support designing effective products?

How can I use the information from a design problem to generate a design solution?
 How can I use sketches and drawings to communicate my design ideas?
 What is the design process?
 What is a product life cycle?

Y11 UNIT 4

Evaluate

What is an effective evaluation?

How can I use a specification to evaluate my final outcome?
 When is it important to get the view of a client?



Y11 UNIT 3

Make

What are the processes involved in modelling, prototyping to generate a final product?

What is a prototype?
 Why do I make models at scale?
 What is a 'proof of concept' model?
 How can I use CAD/CAM to produce a physical product?
 How do I compare hand tools and CAD/CAM?
 How can I shape materials?
 What is a quality finish for a product?
 What is Quality Assurance and Quality Control?
 How can I safely use tools?
 How can I combine materials?

Exam preparation

How can I make sure I am revising effectively for this subject?
 How do I memorise and recall knowledge I need for the exam?
 How do I maximise marks in this subject's exam?
 What are the gaps in my knowledge and how can I address them?
 How do I approach exam questions in this subject to ensure I reach the highest grade?
 What do I need to do to prepare myself for Sixth Form courses?

BRIDGING UNITS

How can I design to solve problems? Identify a design problem and research existing products that have tried to solve the problem before.
 How can I design using the style and the influence of other designers? Create a timeline of influential designers over the last two centuries.
 How can I effectively test materials strength, resistance to corrosion and degradation?
 How can I work within and test the mechanical and physical properties of materials?