

Key Stage 4 Overview

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Year 9 Product Design	<p>University Challenge:</p> <p>I'm an Engineer - get me in here</p>	<p>University Challenge:</p> <p>Charlie Chaplin, History of Film</p>	<p>University Challenge:</p> <p>Local Teams & Groups</p>	<p>University Challenge:</p> <p>South Bank</p>	<p>University Challenge:</p> <p>Healthy Lifestyles</p>	<p>University Challenge:</p> <p>Community/Charity</p>
	<p>Context:</p> <p>Design a concept for a speaker product using the principles of good design</p> <p>Skills:</p> <ul style="list-style-type: none"> ● Observing the rules of good design ● Identifying Dieter Rams' 10 principles of good design ● Analysing existing products and measuring their design against the 10 principles of designs ● Disassembly of existing speaker products matched to the design brief ● Reassembling components and analysing materials and methods of assembly and fixtures 	<p>Context:</p> <p>Making a speaker product using prototyping methods</p> <p>Skills:</p> <ul style="list-style-type: none"> ● Transferring concept generated sketches into 2D plan views of each component with provided dimensions ● Measuring and marking corrugated cardboard ● Cutting and scoring methods of corrugated cardboard material to provide 90 degree joints or flexible curved joints ● Assembling methods for corrugated cardboard using hot glue guns and layering methods to provide detailing ● Evaluating the design of the speaker prototype 	<p>Context:</p> <p>Assembling the internal electrical components of the speaker product</p> <p>Skills:</p> <ul style="list-style-type: none"> ● Converting the design of the speaker product to digital format using 2D CAD modelling software ● Using the internal component dimensions and measurements as a template for the internal components of the speaker product ● Quality inspection of CAD model using initial dimensions as guides ● Reading printed circuit board diagram and wiring guides ● Soldering the internal components of the speaker product 	<p>Context:</p> <p>Designing a modular storage product</p> <p>Skills:</p> <ul style="list-style-type: none"> ● Analysing the design brief and deconstructing using mind mapping methods ● Identifying the different disciplines of design and engineering from the design brief as a result of the mind map and linking to the client ● Interviewing the client based on a compilation of questions to determine the user requirements of the storage product ● Researching biomimicry in existing product and identifying influences for the modular storage product 	<p>Context:</p> <p>Making a prototype of the modular storage product using CAD processes</p> <p>Skills:</p> <ul style="list-style-type: none"> ● Producing a work breakdown schedule by planning each of the stages of the prototyping process ● Allocating jobs and processes for each team member based and regular monitoring of time plan ● Prototyping methods, converting design concept sketches into physical models, 3D CAD models and electronic circuit setups ● Identifying the advantages and disadvantages of digital 	<p>Context:</p> <p>Making the final modular storage product</p> <p>Skills:</p> <ul style="list-style-type: none"> ● Analysis of prototype models and designs in order to generate dimensions and measurements of all components ● Producing a bill of materials which encompass all components for the final build of the storage product ● Investigating assembly and joinery methods for wood panel builds ● Measuring and marking out components on materials, use of accurate measuring processes

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	<ul style="list-style-type: none"> ● Deconstructing the design brief to create a specification of the speaker ● Generating concepts of the speaker product through sketching techniques and ideation 	<p>against the initial design brief and specification</p> <ul style="list-style-type: none"> ● Making modifications to the design of the speaker product based on the outcome of the evaluation 	<ul style="list-style-type: none"> ● Stripping wires to expose metal contacts for soldering ● Final assembly of the speaker housing components and internal components 	<ul style="list-style-type: none"> ● Generating concept designs for the modular storage product based on the client profile and biomimicry study 	<p>CAD design within the design process</p> <ul style="list-style-type: none"> ● 3D printing CAD models and evaluating designs against the initial design brief and user requirements ● Presenting initial designs and prototypes to the original client 	<ul style="list-style-type: none"> ● Cutting and filing processes for large items ● Investigating finishing methods for wood materials ● Applying finishing and final assembly of components ● Final evaluation of the storage products
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