

KS4Project Scheme of Work 2018-19

Subject	Topic	Year Group	Length
WJEC Product Design	Brief; Design and Make a means of holding a mobile phone using 2 pieces of Acrylic (150 by 75mm). Novelty/Comedy is allowed.	Y10	4-6 weeks

<u>Target Grade</u> A-C

Investigating the design context	Development of the design proposal	Testing and evaluation	Communication
Formulate a Situation and Design Brief. Use computers to investigate existing products.	Produce Generation of Ideas, and work through a final design by using card to form prototypes.	Test your phone holder at prototype stage and final product stage.	Use publisher, pro-desktop and hand drawing including isometric to show and present work.

ICT SKILLS
Pro-desktop drawing. Use of publisher. Use of 2D design and laser cutter.

Making
Use tools, machines inc laser cutter to produce a phone holder.

HEALTH AND SAFETY
Full demonstrations and instructions given. Supervision at all times. All risk assessments followed.

EXTENTION WORK
To make a small keyring in acrylic.

Learning ACTIVITY
Designing and making with acrylic.

SKILLS AND KNOWLEDGE
Developing an understanding of the way a GCSE style folder is presented. Develop designing skills and making skills. Develop a knowledge of the four main methods of plastic manufacture.

TECHNICAL LANGUAGE
Thermoplastic Strip heater Solvent glue

Week No	Learning Objective We are Learning to (WALTS)	Specification Focus	Teaching Activity	Outcomes Plenary (WILFs) Assessment	Health and Safety	Resources
1	Understand the Situation and Brief. Take onboard other peoples work in order to gain an understanding of how to succeed. Analyse existing products. H/wk- Finish analysis.	Investigation	Outline The Situation and Brief. Produce a task analysis. Go through existing/past products, which have been made. Facilitate the pupils to search for existing products on computers. Show pupils how to undertake an ACCESS FM analysis.	Folder with design Brief, Task analysis, and Existing products with annotation.	Health and Safety will be addressed in accordance with the applicable risk assessment in conjunction with demonstrations and supervision.	Fully stocked workshop. Laser cutter. 150mm by 75mm acrylic per pupil.
2	Pupils must produce at least 4 ideas full inked in and labelled and a working card prototype of their chosen idea. H/wk- Gen of Ideas finished.	Development of a design proposal.	Pupils must produce ideas for their phone holder. They can model ideas from card or draw ideas on a generation of ideas sheet. Ensure that pupils understand that there is a great need for a reasonable surface area to allow the glue to work	Pupils will produce at least 4 ideas with annotation and will produce a working prototype of their product from card.	Ditto.	Card for prototyping.
3	Pupils will learn about various manufacturing techniques using plastic starting with Injection moulding. H/wk- Injection Moulding.	Exam focus	The teacher will produce quick notes on the board about injection moulding and the pupils will be expected to take down rough notes and write the work up neatly for h/wk. A diagram will be included. Pupils will fill in a pro-forma to choose the colour of acrylic needed. The acrylic can then be cut and pupils can be shown how to mark out accurately.	Homework will be produced on Injection moulding.		
4	Pupils will further develop their practical ability. Pupils will gain an understanding of 'Vacuum Forming'. Pupils will develop their drawing ability using orthographic projection. H/wk- Vacuum forming.	Making Exam focus	Re-cap how to mark out the acrylic accurately. Pupils will continue with marking, shaping and cutting their acrylic pieces. For a single lesson the pupils will be given time to produce an orthographic projection of their chosen product. Quick notes will be produced on 'vacuum forming' and the pupils will again produce neat notes for homework.	Products being manufactured. Good level of accuracy and all health and safety aspects adhered to.		

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5	<p>Pupils will further develop their practical ability.</p> <p>Pupils will gain an understanding of Extrusion blow moulding'. H/wk- Extrusion blow moulding.</p>	<p>Making</p> <p>Exam focus</p>	<p>Pupils will be allowed to continue with their practical work. Demo on finishing acrylic edges. Quick notes will be produced on 'Extrusion blow moulding' and the pupils will again produce neat notes for homework.</p>	<p>Products being manufactured. Good level of accuracy and all health and safety aspects adhered to.</p>		
6	<p>Pupils will further develop their practical ability.</p> <p>Pupils will gain an understanding of Extrusion'. H/wk- Extrusion.</p>	<p>Making</p> <p>Exam focus</p>	<p>Pupils will be strip heating and gluing their products together. Ensure that the edges are highly polished prior to the gluing process.</p> <p>Quick notes will be produced on 'Extrusion' and the pupils will again produce neat notes for homework.</p> <p>Once pupils are finished they can produce false card phones and name labels in order for the phone holders to be displayed.</p>	<p>Products being manufactured. Good level of accuracy and all health and safety aspects adhered to.</p>		
7	<p>Pupils will use diagrams and notes to show how their product has been made making particular reference to the tools and processes involved. Evaluation of their making process and evaluation of their finished product.</p>	<p>Evaluation</p>	<p>Pupils will be supported as they produce a step-by-step account of how they produced their products.</p> <p>Evaluation will be discussed as a class and then in pairs they will produce a peer evaluation of their products.</p>	<p>A good level of subject knowledge being demonstrated. Correct tool, machine and process names used.</p>		

Notes.

Grade	Investigating the design context	Development of the design proposal	Making	Testing and evaluation	Communication
A	Well presented and annotated existing products.	Well presented design ideas with annotation showing how they would be made. Model to scale and neatly produced.	Use of a range of tools and equipment correctly, safely and accurately.		High quality presentation. Use of a range of communication techniques.
C	Presented with some care. Labelling to a basic level of understanding.	Three ideas at least. Presented to show some material/ making details. Modelling neatly produced with some accuracy in scale.	Use of a range of tools and equipment with the need for help. Safely and correctly used.		Good presentation with different techniques used.
E	Presented with little care. Few notes written about existing products.	Few designs, with limited inclusion of meaningful labelling. Presented poorly. Modelling of very little use.	Some tools and equipment used at a basic level. Help needed often.		Low level presentation. Limited range of techniques used.

Addition all assessment