

The Brief: You are working part time in a cycle supply and repair shop and your manager is impressed with the work you have been producing. He now wants you to make a replacement handy spanner key fob.

The Task: Use CAD, CAM and casting techniques to produce an exact replica spanner.

CAD CAM:

2D design - CAD	Computer software for drawing flat parts
Laser cutter - CAM	A machine which cuts and engraves with a laser



The Design Criteria:

A list of targets that you set for yourself to achieve with your product.

The Engineering Design Process:

- Response to brief
- Research
- Design criteria
- Ideas
- Compare to design criteria
- Develop
- Test
- Make
- Test
- Modify
- Test
- Evaluate

Melting point of Pewter: 170°C - 230°C

Materials:

Pewter (Non Ferrous Alloy) – a malleable metal alloy. It is traditionally composed of 85–99% tin, mixed with copper, antimony, bismuth, and sometimes silver or lead, although the use of lead is less common today. Pewter is 100% recyclable.

MDF (Manufactured board) – an engineered wood product made by breaking down recycled hardwood or softwood residuals and then gluing the fibers back together with a resin. The MDF is laser grade MDF.

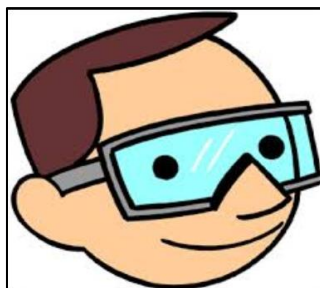
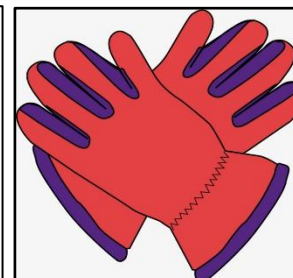
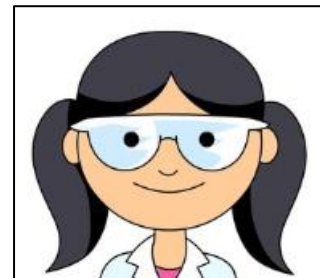
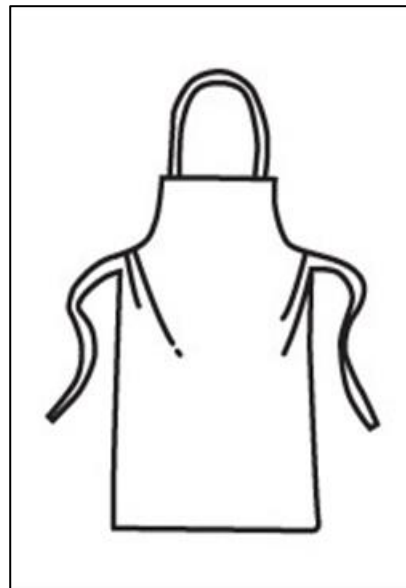
The Making Stages:

- Audit and measure
- CAD mould
- CAM production
- Cutting Pewter
- Preparing mould
- Heating Pewter
- Casting Pewter
- Remove excess
- Emery
- Buff
- Polish
- Drill

Key words:

- Alloy
- Casting
- Ferrous
- Non ferrous
- Malleable
- Composition
- Iterative
- Modifications
- Sustainability
- ore

Health and Safety:



Assessment:

60% Product and folder
40% Exam



FHS DT



Year 8 Engineering – Pewter casting



Hack Saw



Heat proof gloves



Senior hack saw



Scribe



Brasso



Camping stove



Buffer



Hand vice



Needle files



Pillar Drill



Pewter casting ladle



Emery paper



File



2D design



Laser cutter

Pewter