

# LOW TEMPERATURE CASTING PROJECT OUTLINE NO3

## A JEWELLERY SET FROM CARDBOARD MOULDS

### THE TASK:

To understand the processes used in casting in order to create a three-dimensional component that could not be produced using other methods of manufacture.

### LEARNING OBJECTIVES

- To understand the processes involved in the production of a small object cast in metal.
- To be in a position to go from initial design to the finished manufactured product.
- To develop an understanding of the use of a low melt metal (Pewter) as a design material.
- Pupils should be taught about hazards, risks and risk control during activities using heat treatment equipment.
- Teachers will need to judge when it is appropriate to introduce pupils to cutting, shaping and forming techniques.

### PRE-LESSON PREP (PREVIOUS WEEK)

- Explain the project - making references to what they will know, understand and be able to do by the end of the project.
- Give a clear indication of the level of capability the core will be working at, explaining that you will be providing some pupils with extension work at a higher level of capability.
- Look at the LT1 and explain its purpose, making reference to any possible design constraints.
- Show examples of designs made using card to create a mould.



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### THE LESSON:

**DEVELOPING A DESIGN SET OF JEWELLERY:** Students develop their own ideas and design and make casting in the form of body adornment.

#### Understanding materials:

Focus: resistant material.

Focus: practical task on the process of casting. This student studied shape and form to create a range of jewellery.

A set of 4 designs: ear rings, pendant, brooch and bracelet.



### CAST HEART



### PURCHASED CUT-OUTS



### 4 WAY MOULD SHOWING CAST HEARTS







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### The design inspiration:



### 2. Moulding tip.

If using cut-outs of designs which are small you can prepare a four way mould allowing you to set four designs within one MDF block.



### 1. Preparing a design mould.

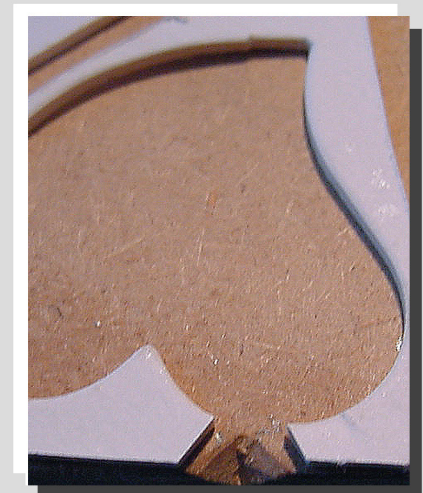
Pupils will prepare a design of maximum size 40mm x 40mm. Trace the design and then run a soft pencil over the reverse side of the trace. Fix the trace to a sheet of card 50mm x 50mm and retrace leaving a pencil trace on the card.

Cut out the shape using a rotating head scalpel for safer use. The card mould can then be placed between two pieces of MDF.

### 3. Adding sprue hole to mould.

Angle Sprue hole of 8-10 mm to make a "pouring funnel" for the metal. A slight Cut-out into the MDF to increase the sprue width size is recommended.

No requirement for a vent as when full the air is pushed through the sprue by the overspill of metal.





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### 4. The cast heart.

Any small air holes can be filled when the piece has cooled using soft solder. After the piece has cooled any rough edges can be removed and the surface cleaned and polished.



### 5. Casting tip.

Depending upon the use of the piece, a brooch or a pendant, ear rings or bracelet, an appropriate clip can be fixed or an eyelet can be soldered on to enable a chain to be attached.

### 6. Care of the mould.

Should the temperature of the metal be too hot (Browning the edges of the card) then turn the thermostat to the lower setting.

This will still allow you to pour into your mould without damaging the cardboard mould. Remember that over a period Low temperature setting will reduce the flow so a return to a High setting may be required to re-heat the pewter.

### 7. Casting tip.

An alternative way of protecting the card from being damaged is to spray glue the cut out to one piece of the 6mm MDF and when dry coat in hammerite paint.

When dry sandwich the mould with another piece of MDF. Your mould is now ready for use.