

LOW TEMPERATURE CASTING

PROJECT OUTLINE NO2

CASTING INTO CARDBOARD MOULDS

THE TASK:

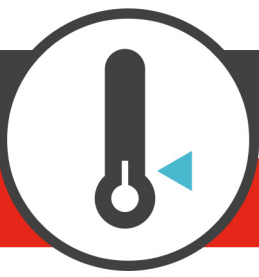
To understand the processes used in casting in order to create a three-dimensional component that could not be produced using other methods of manufacture.

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 product.
- To develop an understanding of the use of a low melt metal (Pewter) as a design material.
- To observe safety aspects required for a practical activity in the classroom.

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:

BRITAIN SINCE 1930: A study of the impact of the Second World War.

A WORLD STUDY AFTER 1900: A study of some of the significant individuals, events and developments from across the twentieth century, including the two World Wars, the Holocaust, the Cold War, and their impact on Britain, Europe and the wider world.

This student used information provided by his Grandmother who was evacuated out of London during the war. His grandmother remembered the early part of the Battle of Britain and her account of a dogfight inspired his design.



LAYERED CARD FOR DEEPER MOULD

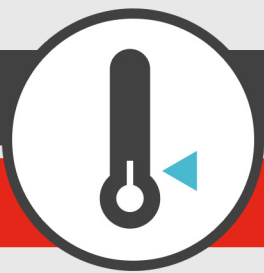


PURCHASED CUT-OUTS



SINGLE LAYER





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The design inspiration:



1. Tracing of prepared designs on to card. 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.

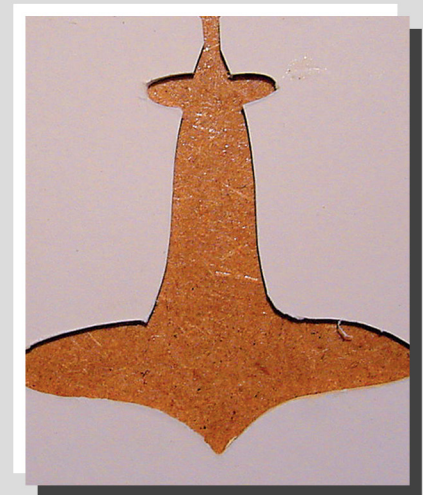
2. Adding sprue hole to mould.

Angle Sprue hole of 8-10 mm to make a "pouring funnel" for the metal.

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



3. The finished card mould. The card mould is placed in between two pieces of 50mm x 50mm x 6 mm pieces of MDF.





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4. The cast plane.

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. The finished plane.

Depending upon the use of the piece, a brooch or a pendant, either a brooch clip can be fixed to the back 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 (as seen in the mould above, see '4: The cast plane') is to coat the card area which comes in contact with the hot metal with Hammerite paint.