

**Modelling**

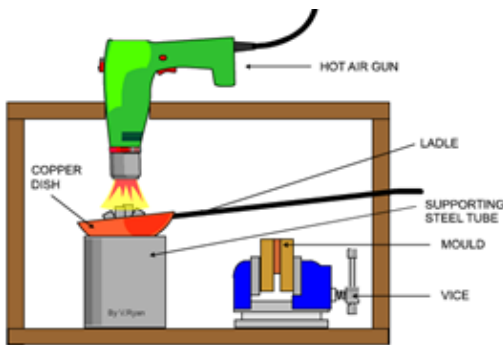
**What is Modelling?**

Modelling is the testing of design ideas to see if they are fit-for-purpose or need modification.

**Why do designers make models?**

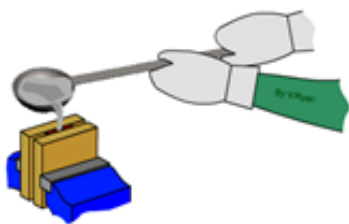
Making a model allows designers to visualise and test how a product looks and performs in 3D. It is also a great way of checking a product's viability.

**Pewter Casting 1**



When the mould is finished, it is placed between a casting mould and secured in a vice. A heat gun is normally used to strip old paint from wood. However, it is ideal for heating up pewter and usually takes about two to three minutes before it is ready for pouring.

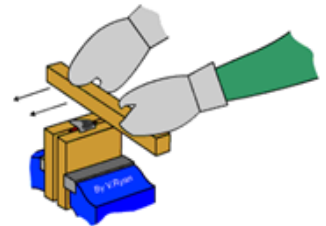
**Pewter Casting 2**



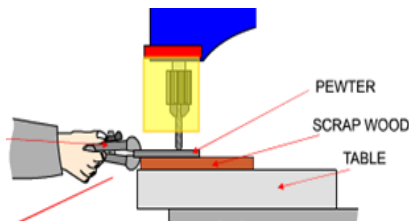
When the pewter is in a molten state, it is ready to pour into the mould. PPE/ safety equipment should be worn when carrying out this procedure. Leather gloves, a safety visor and leather apron are usually worn.

**Pewter Casting 3**

The casting is allowed to cool and removed from the casting mould. When it is cooled, a small amount of pewter is normally left above the sprue. This must be removed by using a junior hacksaw to cut it. The excess pewter can be recycled later.

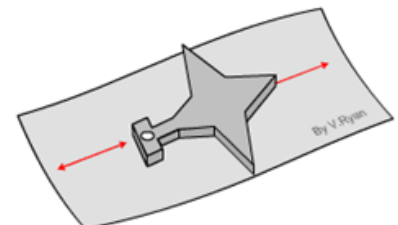


**Pewter Casting 4**



If drilling is needed a hand vice is used to hold the shape. This is a safe technique. The hand vice has two jaws that are closed by turning a wing nut (see above).

**Pewter Casting 5**

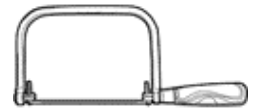


The pewter shape is finally filed, cleaned and smoothed by using wet and dry paper and emery cloth. A small amount of water is added and the shape is moved forwards and backwards. Smoothing the surfaces can take a considerable amount of time. However, the finish is very good. The surface can then be polished using metal polish and a soft cloth.

## Tools used for this Project



**Coping Saw:** A coping saw is a frame saw used to cut intricate external shapes and interior cut-outs.



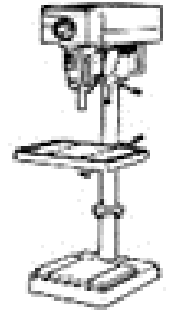
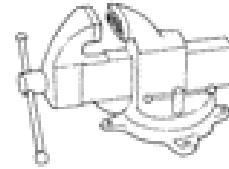
**Hack saw:** A hack saw is a frame saw used to cut metal.

**Pillar drill:** A pillar drill is a free-standing machine, that uses a motor to rotate a drill bit with variable speed range. This drill bit can be used to cut holes of different diameters into different types of material, such as wood or metal.

**File:** A file is a tool used to remove fine amounts of metal from a work piece.



**Vice:** A device consisting of two parallel jaws for holding a work piece.



**Steel ruler:** A steel rule is a basic measuring tool.

**Glass Paper:** Strong paper faced with pulverized glass and used in abrading or smoothing slight irregularities in surfaces.

## Technical Terms (Design)

**Natural Forms:** Form is defined as the shape or visual quality of something. It refers to aesthetics or how it looks.

**Enlarge:** Make or become larger, or more extensive.

**Simplify:** Make something simpler or easier to do, or understand.

**Reduce:** Make smaller or less in amount, degree, or size.

**Pattern:** A pattern is an arrangement of lines or shapes, especially a design in which the same shape is repeated at regular intervals over a surface.

**Texture:** Texture refers to the surface quality in work or a sketch. Some things feel just as they appear. This is called real or actual texture. Some things look like they are rough, but are actually smooth. Texture that is created to look like something it is not, is called visual or implied texture.

**Detail:** Detail in design is sometimes referred to as 'developed design' or 'definition'. It is the process of taking on and developing the design with small additions.

**Line:** A line is a mark made on a surface that joins different points. Lines can vary in length, width, direction and shape. Artists and designers can use lines for many different reasons. Lines can show the subject's physical appearance, the outline of shapes and objects.

**Design Ideas:** Realisation of a concept or idea into a configuration, drawing, model, mould, pattern, plan or specification, which helps achieve the designated objective(s).

## Technical Terms (Materials)

**MDF:** Medium-density fiberboard is an engineered wood product. It is made from tiny fibres of softwood timber and has no natural grain structure. It is combined with wax and a resin binder and formed into panels by applying high temperature and pressure. It is reasonably cheap and has a smooth surface. It is often used for shelves, worksurfaces and flat pack furniture.

**Acrylic:** Acrylic is a plastic material (polymer) with outstanding strength and stiffness. It has superior weathering properties when compared to many other plastics and is available in different colours.

**Alloy:** An alloy is a mixture of two or metals. This gives the metal different properties.

**Pewter:** Is an alloy composed primarily of tin, with varying quantities of hardening agents such as antimony, bismuth, copper and lead. It has a low melting point.

**Metal Polish:** Metal polish is used for finishing or buffing, by removing scratches and abrasions from a metal surface and creating the desired brightness of finish on that surface.

**Wire:** A wire is a single (usually cylindrical), flexible strand or rod of metal.