

SHEET METAL WORK

Unit 022 of your NVQ is Sheet Metal Work.

In this unit you are required to produce three pieces of work, known as assessments, that meet the criteria of the standards.

In order to achieve this, you need to produce various items of work as practice pieces, which in turn will develop your skills to a point where the assessment pieces will not present a problem.

Before you can carry out any sheet metal work activities, you must be aware of the health and safety requirements.

- Wear correct PPE
- Observe laws such as HASAW, COSHH, RIDDOR, LOLA etc
- Check there are no harmful substances

Only use lifting equipment that has been checked and tagged.

Ensure pipework and pumps etc are empty before dismantling.

Ensure electrical equipment is isolated.

Dispose of waste correctly.

DO NOT interfere with any equipment or use any equipment that is unsafe.

DO NOT indulge in any practical jokes or horseplay

You will be required to wear PPE and the type for sheet metal work is :-

- Safety specs - protect the eyes from chemical splashes, flying debris and other objects.
- Overalls – protect your skin and other garments. Example Proban are fire proof.
- Gloves protect the hands from sharp edges, hot objects, pinched fingers etc.
- Boots protect the feet.
- Spats can protect the ankle areas.
- Full face masks protect the eyes and face when grinding as sparks fly everywhere.

You will also need to keep the work area safe and tidy.

Why do you think this is?

- **Prevents accidents from tools lying around.**
- **Prevents slips, trips and falls from loose cables.**
- **Prevents accidental spillage of lubricants or solvents.**
- **Prevents cut fingers and hands from sharp objects**
- **Makes finding small tools easier.**

Makes the working environment better.

You will also be required to lift and move sheet material, from thin sheet to heavy plate.

Remember the basic rules of lifting:-

- Bend your knees not your back.
- Keep your back as straight as possible.
- Assess the weight – sheet is lighter than plate
- Wear gloves
- Carry upright as opposed to flat
- Heavy plate can be carried using pallet trucks/FLT's
- Slings can be placed corner to corner and lifted centrally to lift and balance in upright position.
- Seek help if sheet is heavy – one person each corner.
- Ensure sheet does not slide during lifting from flat position
- Use rollers

MARKING OUT

In sheet metal work, marking out is done with the metal flat. It is then bent, rolled or folded and joined to other sheets to form the final shape.

To the inexperienced eye the marking out in the flat position bears no resemblance to the finished piece.

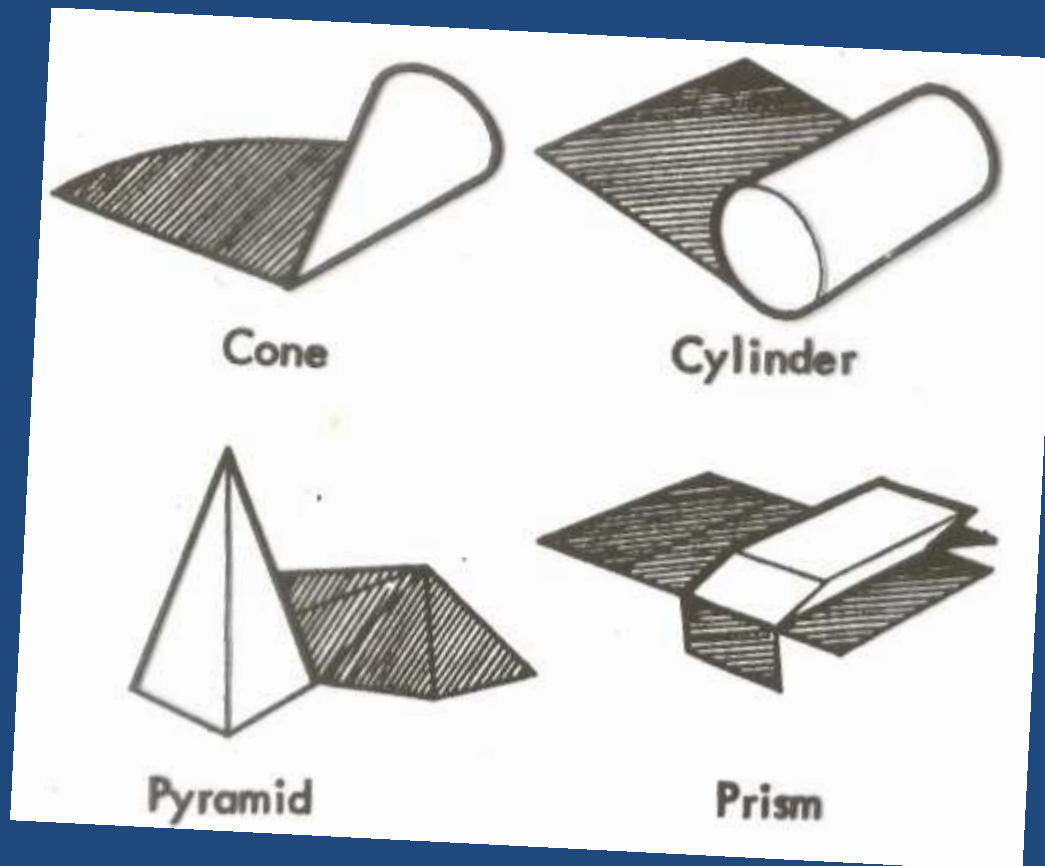
When bending, folding, joining and wiring are to be carried out this must be calculated and marked off in the layout.

When a number of identical items need to be made, a template can be used to save the time of measuring and marking the same thing several times.

**BUT – if the template is wrong then everything is
wrong!!**

Fabrication Developments

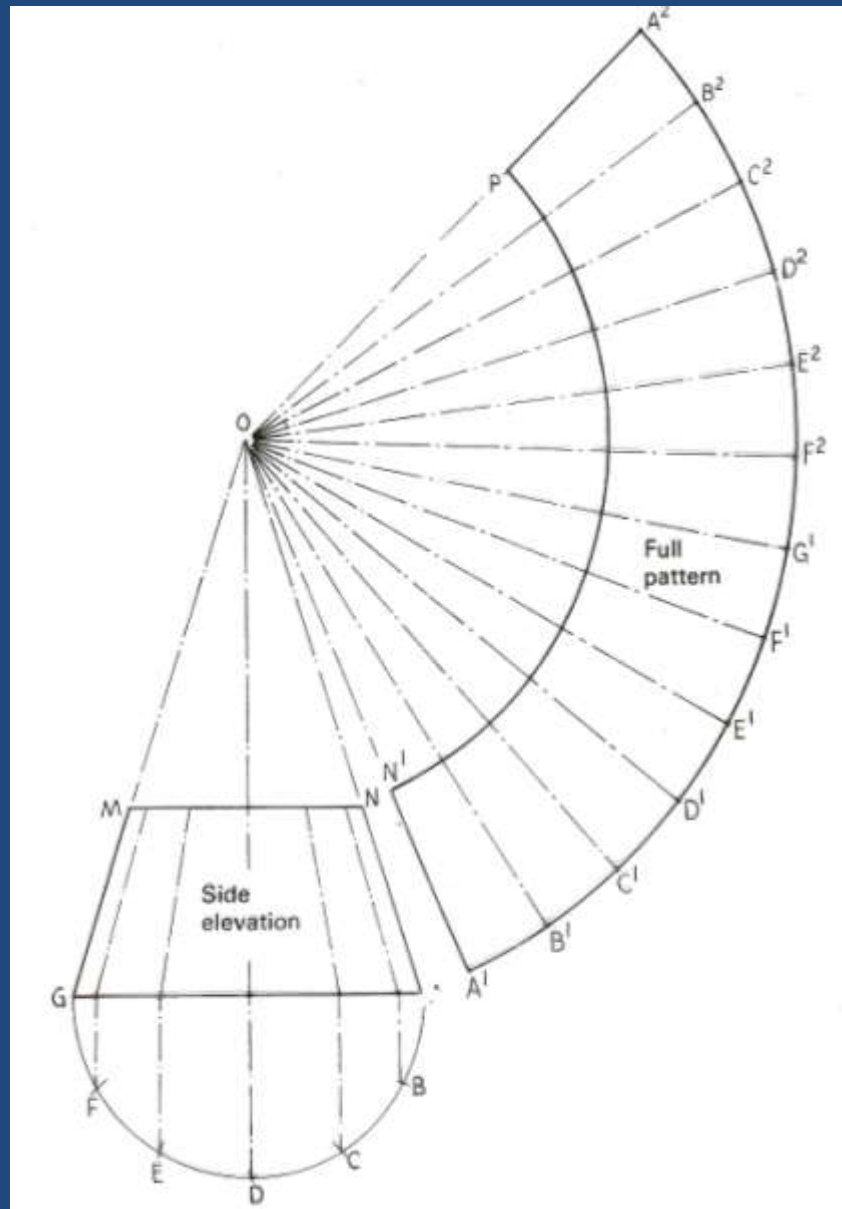
The shaded areas in the illustration show, show in a flat plane, the true shape and dimensions of material required to manufacture the four items. This shape is known as a Development and to produce it, basic knowledge of geometry and practice in making layouts is required.

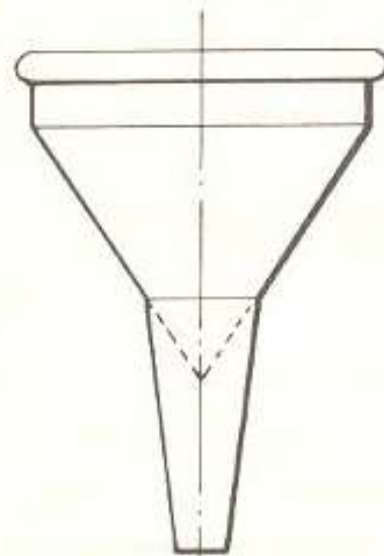


The development of patterns can be achieved by using one of three methods:-

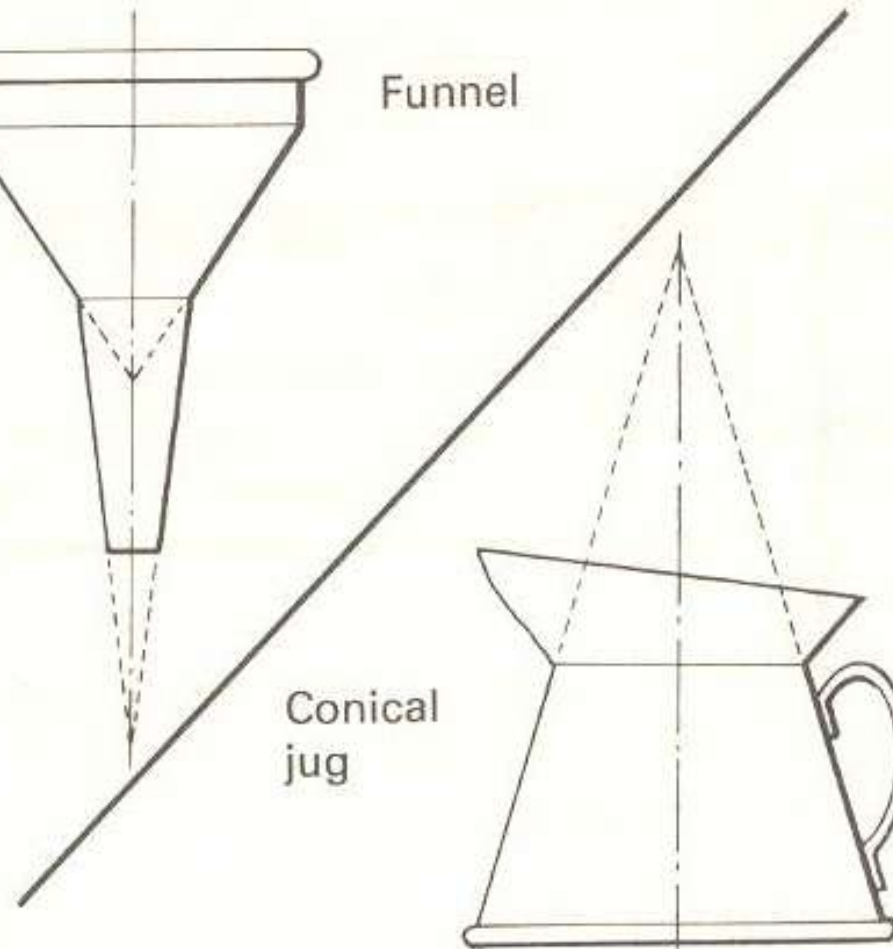
- a) Radial Line
- b) Parallel Line
- c) Triangulation

Radial line development – forming a truncated cone.





Funnel



Conical
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