

Orthographic Projection > Third Angle

Learning outcomes:

- I can recognise the direction of viewing used to derive the various views in third angle projection
- I can project the elevations of a simple solid in third angle projection

By the end of the lesson I will be able to:

- Draw a front elevation
- Draw an end elevation
- Draw a plan
- Draw the third angle symbol

Before studying this lesson I need to make sure that I know how to:

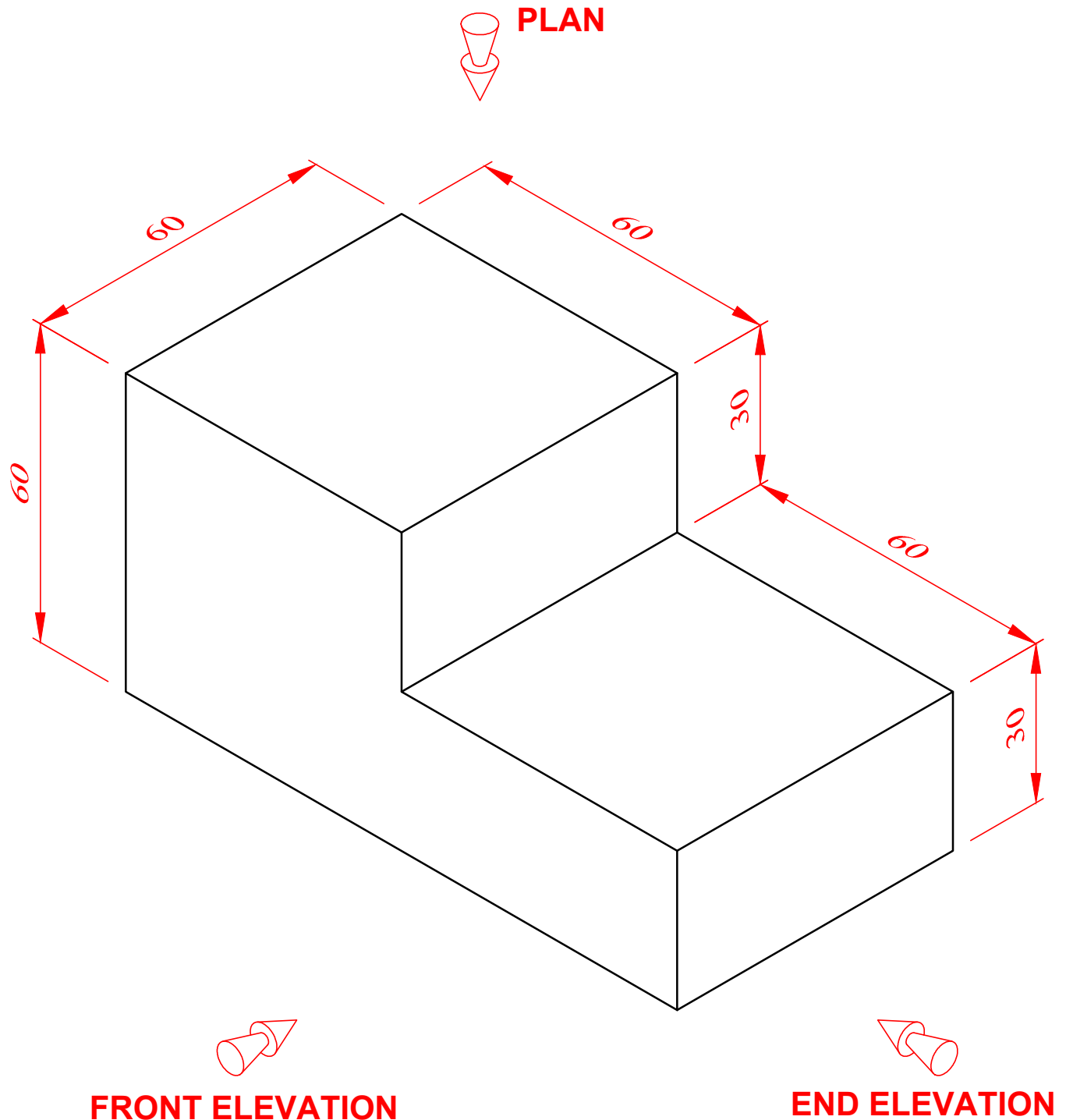
- Draw construction lines
- Label neatly in block letters
- Apply different line weights to construction lines and bold lines

Self Assessment (to be done after the lesson)				
	Well Achieved >	Achieved >	Almost There ?	Need more Effort @
I can project across the three views				
My drawings are accurate and correct				
My drawings are neat and well presented				
I can place the views in their correct order				
I can draw the third angle symbol				

Orthographic Projection

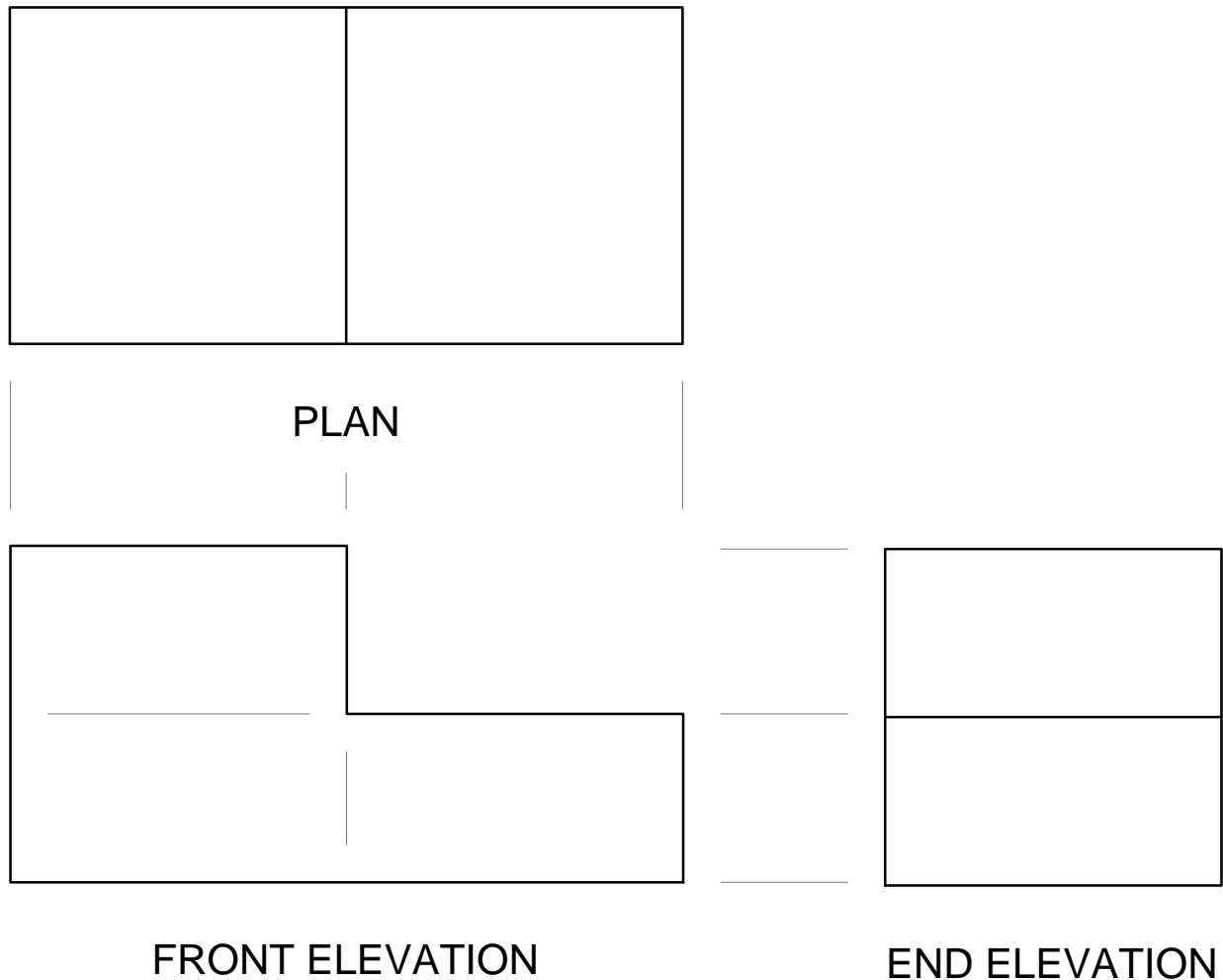
The **orthographic projection** is a way of drawing an object as seen from **three different directions**. To demonstrate this, we will use the simple object shown below, a video of which can be viewed at: <https://youtu.be/wcRnctJeclk> .

The three directions from which the object is to be drawn are shown below. They are called **Front Elevation**, **End Elevation** and **Plan**. This helps us distinguish between one view and the other.



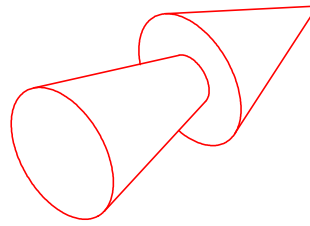
In this other video; <https://youtu.be/BvKWIQpTMxQ> , the same object is shown with its surfaces colour coded. The surfaces that can be seen from the **front elevation** are coded in **green**, the ones seen from the **end elevation** are coded in **blue** and the ones seen from the **plan view** are coded in **red**.

When drawn in **orthographic projection**, this object is drawn as shown below.



Note that the views are neatly **labelled** so that we know what we are looking at. Also note that they are drawn **aligned to each other**. This is shown by the faint lines projected from one view to the other. The **positioning** of the views is also important. An easy way to know where you should place a view is by looking at its **arrow** in the three dimensional view of the object.

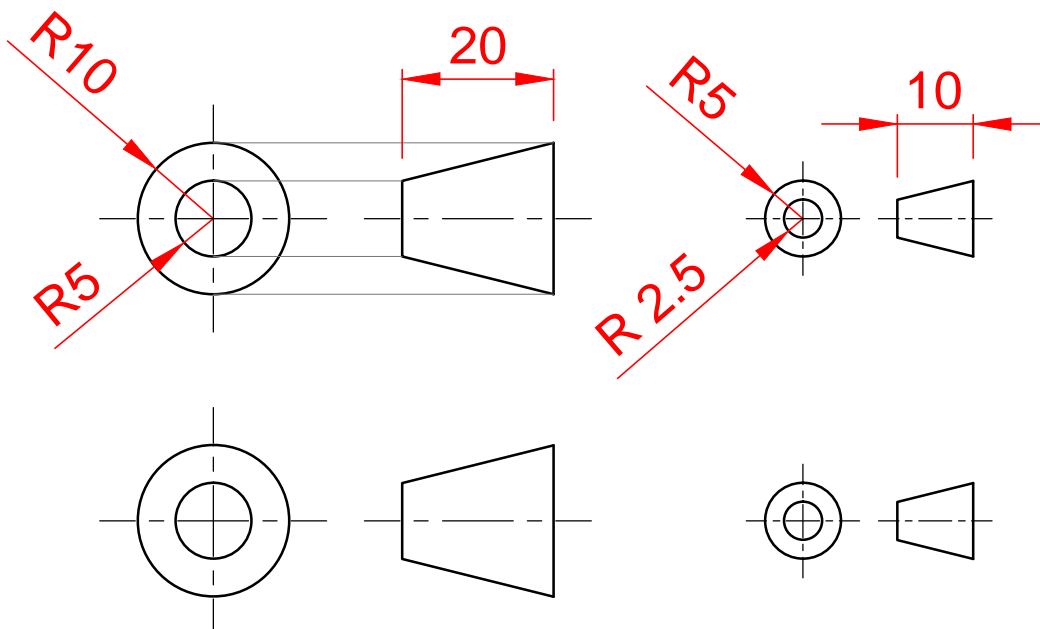
For example, the **arrow of the front elevation** is in the **bottom left hand corner** of the paper.



FRONT ELEVATION

This means that the front elevation should be drawn at the bottom left hand side of the paper. In the same way, since the arrow of the end elevation is in the bottom right hand corner, the end elevation is to be drawn in the bottom right hand corner. The arrow for the plan is at the top, but in the case of the plan, we do not just draw it at the top of the paper. Instead **we draw the plan aligned to the front elevation**.

The **third angle symbol** and its dimensions are given below.



THIRD ANGLE SYMBOL