

UNIT 2.- TECHNICAL DRAWING

Technical drawing is the method Technology uses to transmit and communicate ideas and information about an object: its shape, dimensions, details, etc.

Technical drawing is standardized: we have to follow some rules when we draw an object for other people to be able to build it.

Artistic drawing is not standardized.

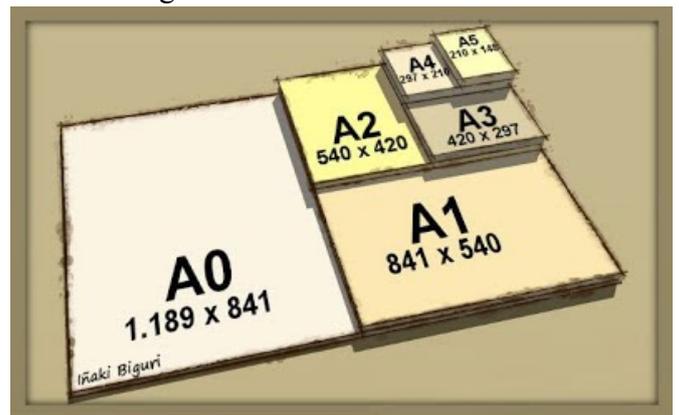
2.1.- Drawing materials.

- a) Pencil: they have a wooden case with a lead inside made of graphite and clay. Depending on the hardness of the lead, we have several grades:

6H, 5H, 4H, 3H, 2H, H, HB, B, 2B, 3B, 4B, 5B, 6B.

- Hard pencils: 6H to H, for thin lines and technical drawing.
- Medium pencils: HB, for normal use.
- Soft pencils: B to 6B, for thick lines and artistic drawing.

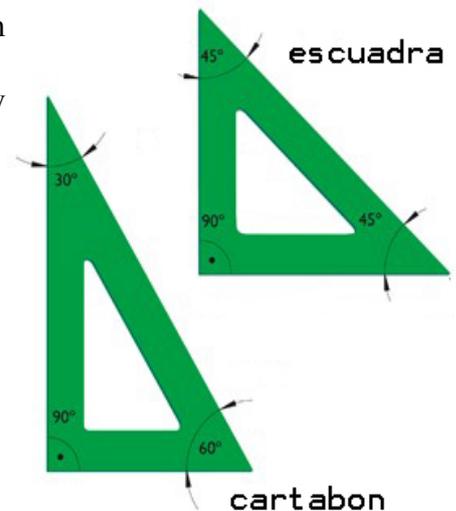
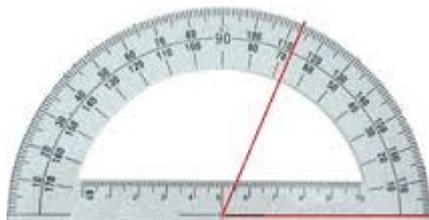
- b) Paper: We use white paper classified by size, which are called formats. They are standardized, and the most common format is A4: its size is 210 x 297 mm. There are more formats:



2.2.- Drawings Tools

They help us draw precise lines.

- a) Ruler: we use it to draw straight lines and to measure them. It is graduate into centimeters and millimeters.
- b) Compass: it is used to draw circles and arcs. It must be in good condition.
- c) Set squares: they are two triangles that we use to draw parallel and perpendicular lines.
- d) Protractor: we use it to measure and draw angles.



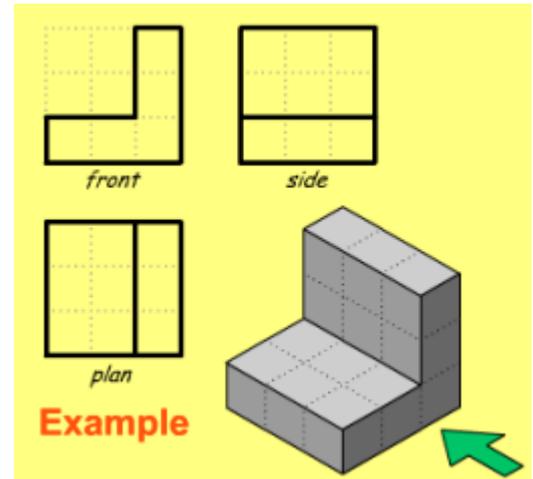
2.4.- Types of technical drawings

- Sketch: it shows the first idea of an object. It's made freehand, in perspective and displaying main details and dimensions of the object.
- Diagram: it gives more specific information, including measurements, materials, etc. It's made freehand.
- Plan or blue print: finished drawing of the object. It's made with drawing tools, in standard formats and following all technical drawing rules.

2.4.- Views of an object or Dihedral System.

This is used to represent 3 dimension objects in a paper which only has 2 dimensions. We look at the object from several direction and we get a 2 D drawing from each direction.

Example:

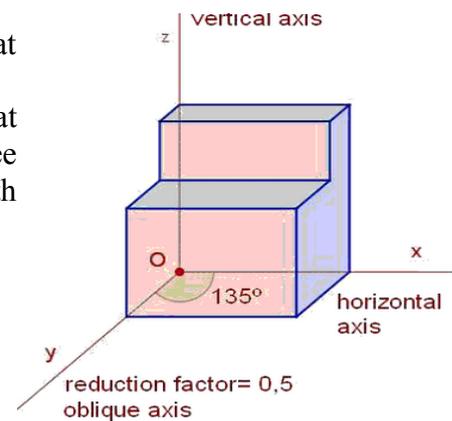


Remember: front, top and side views have always the same position in our drawing. We can not change them.

2.5.- Perspective

We use perspective to show the three dimensions of the object at the same time in a 2D drawing.

Cavalier perspective: we use a three axes system, two of them at right angle, and the third one is at 135° to the others. These three axes match with the main dimensions of the object: length, width and height.



2.6.- Scales

They are used to adapt real dimensions of the object to the paper size. There are three of them:

- Reduced scale: when the real object is bigger than the drawing, e.g., the drawing of a house.
- Full scale: when the object and the drawing have the same dimensions, e.g., a spoon.
- Enlarged scale: when the object is smaller than the drawing, e.g., a screw.

2.7.- Dimensioning (Acotación)

When we dimension a figure, we indicate on the drawing the real measurements of the object. We use parallel lines to the edge we want to measure, ending in arrows. We write the measurements always in the same unit: millimeters, and we must not repeat measurements, because this can cause confusion.

