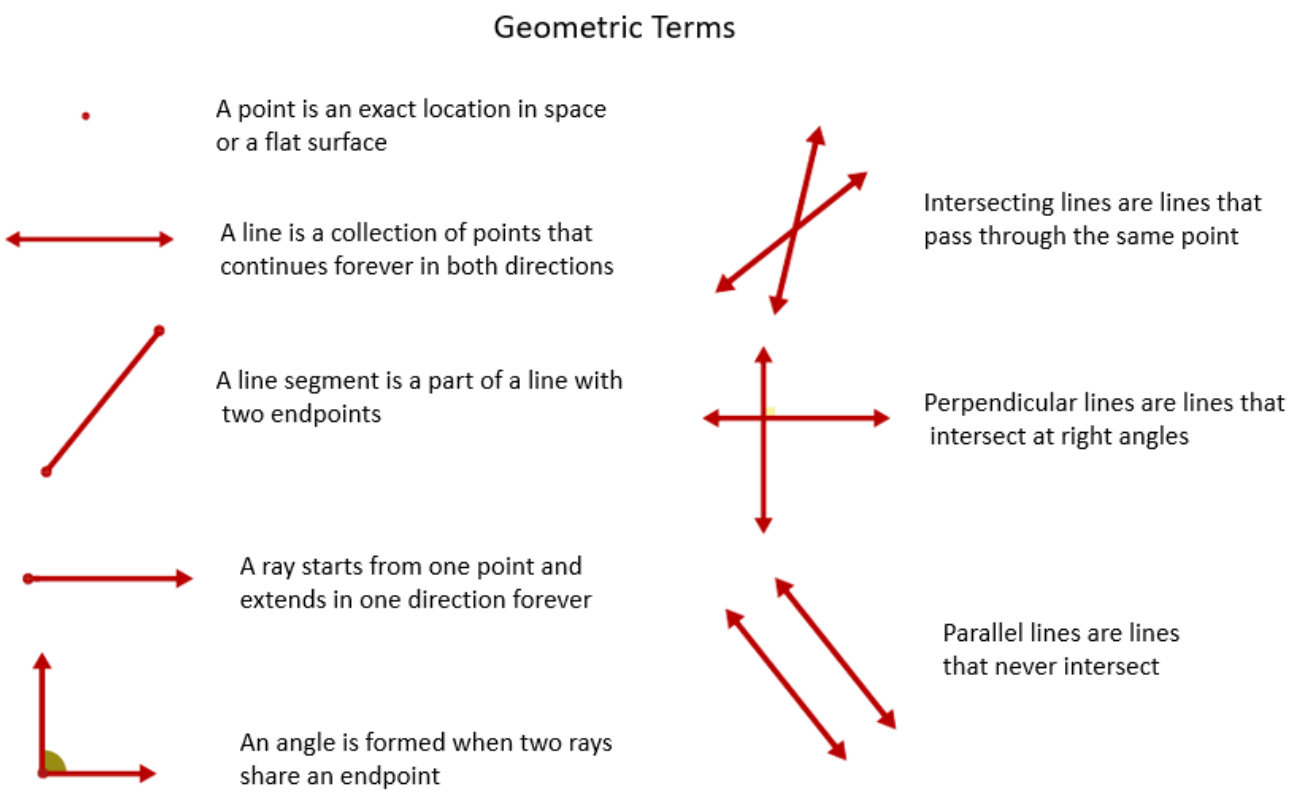
2nd ESO notes of Visual Arts
from September to November of 2019

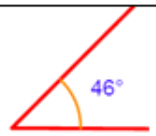
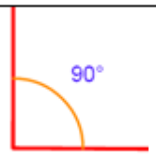
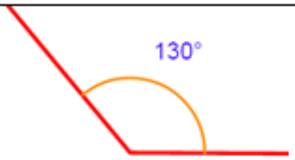
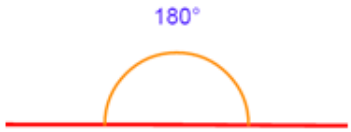
DRAWING TOOLS (Notes from sheet number 1)

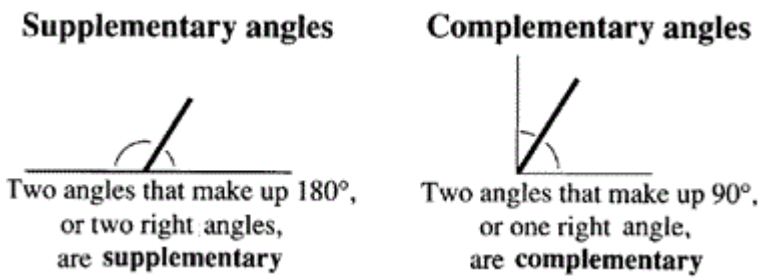
- **Graphite pencil:** It is a writing or drawing instrument consisting of a thin stick of graphite, usually encased in a thin wood cylinder.
- **Set squares:** they are used for drawing parallel, perpendicular lines and some angles (90, 60, 30, 45, 120, 150 and 135 degrees).
- **Eraser or rubber:** this is an article that is used for removing pencil and sometimes pen writings. Many pencils are equipped with it on one end.
- **Coloured pencils:** they are used to add colour to our drawings.
- **Paint brush:** there are different sizes and thicknesses of brushes.
- **Ruler:** it is used to measure line segments and to draw straight lines.
- **Compass or pair of compasses:** it is used to draw circumferences and arcs.
- **Markers:** in Spanish they are known as "rotuladores".
- **Protractor:** it is used for drawing or measuring angles.

Students must add a little drawing of each drawing tool next to its definition

GEOMETRIC TERMS AND SPECIAL POINTS AND SEGMENTS IN TRIANGLES (Notes from sheet number 2)



Type of Angle	Description	Example
Acute Angle	An angle that is less than 90°	
Right Angle	An angle that is exactly 90°	
Obtuse Angle	An angle that is greater than 90° and less than 180°	
Straight Angle	An angle that is exactly 180°	



There are four important segments involving triangles:

- A **median** (mediana) is a segment joining one of the vertices of a triangle with the midpoint of the opposite side. The point where the three medians intersect is the **centroid** (baricentro).

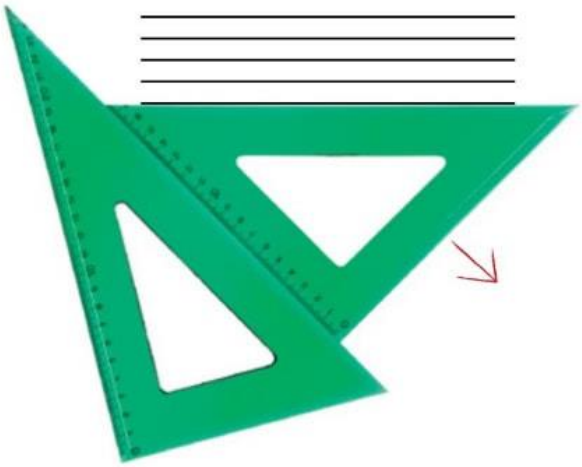
- An **altitude** (altura) is a segment that has one vertex of a triangle as an endpoint and is perpendicular to the opposite side. The point where the three altitudes intersect is the **orthocenter** (ortocentro)

- An **angle bisector** (bisectriz) passes through one of the vertices, bisecting the angle at that vertex. The point where the three angle bisectors intersect is the **incenter** (incentro).

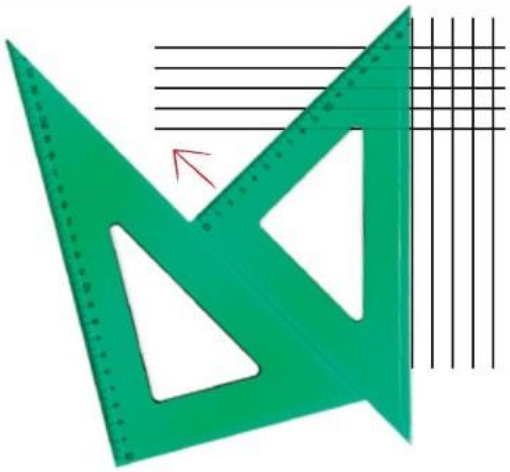
- A **perpendicular bisector** (mediatriz) is perpendicular to a side of a triangle at its midpoint. The point where the three perpendicular bisectors intersect is the **circumcenter** (circuncentro).

****DRAWING PARALLEL AND PERPENDICULAR LINES WITH SET SQUARES (Review of the past course. Photocopy)**

Drawing parallel and perpendicular lines

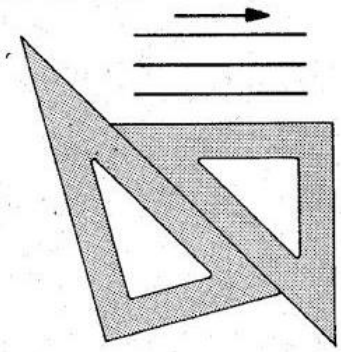


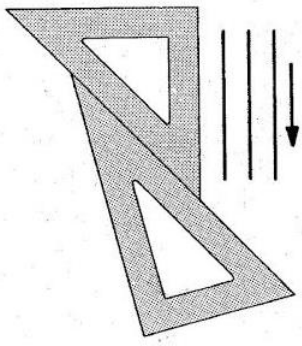
Look at where the 45° and 60°/30° set squares are positioned in the picture on the left. This position enables us to draw parallel lines. The 60°/30° set square stays in the same place, whilst the 45° set square slides down the page to draw lines at different horizontal positions. These lines are therefore parallel.



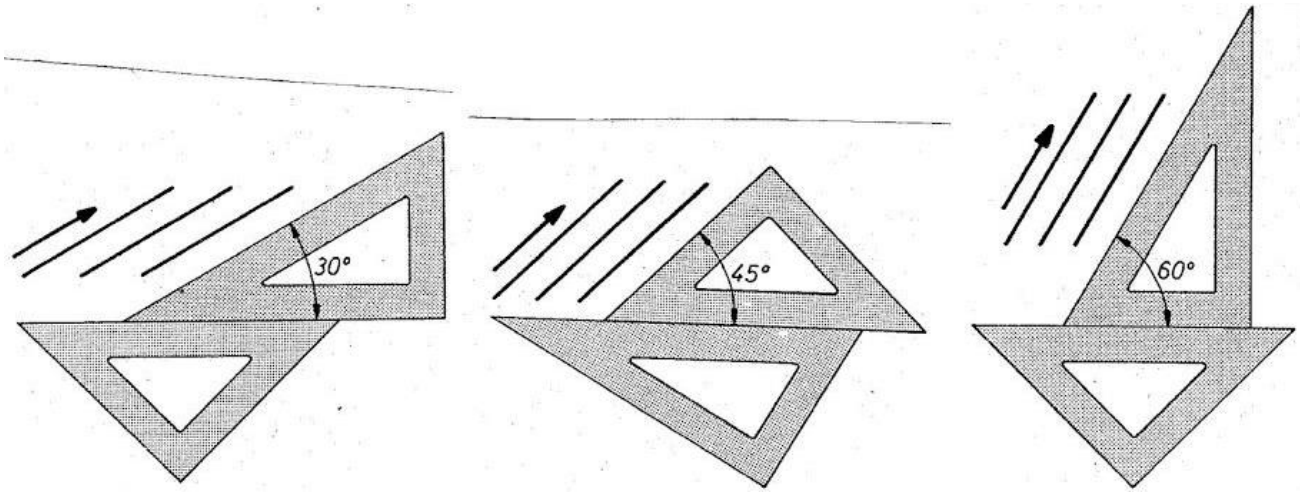
To draw perpendicular lines, you simply have to rotate the 45° set square, as shown in the picture on the right. Meanwhile, the 60°/30° set square stays in its original position. When you move the 45° set square, you can draw lines that are parallel to one another and perpendicular to the original lines.

OTHER WAYS TO DRAW HORIZONTAL AND VERTICAL LINES WITH SET SQUARES





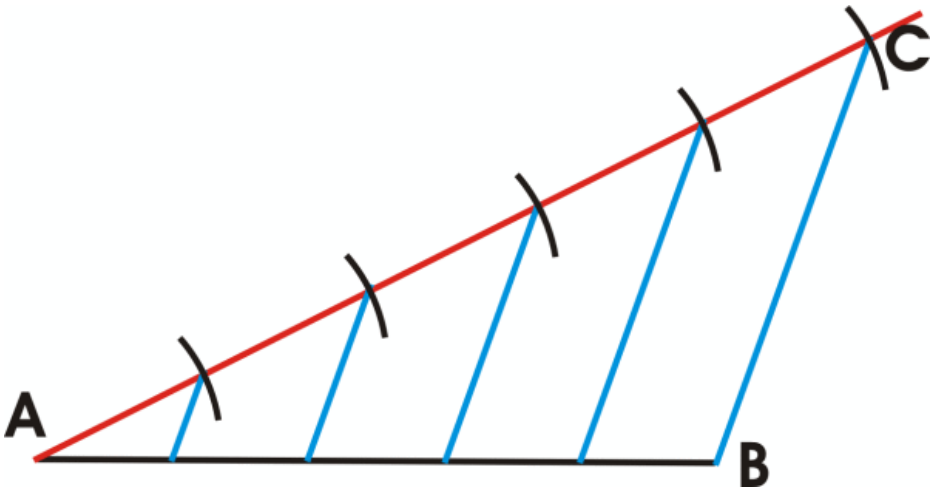
DRAW ANGLES WITH SET SQUARES



DIVIDING A SEGMENT INTO SEVERAL EQUAL PARTS (Notes from sheet number 3)

We use Thales theorem to divide a given line segment into a number of equal parts with compass and straightedge or ruler. By using a compass and straightedge construction, we do this **without measuring the line**.

STEPS:

1. Draw the given segment AB. This is the segment that we want to divide.
2. From point A draw an oblique ray (r).
3. Choose a measure with your compass. From point A draw arcs on the oblique ray as many arcs as parts you need.
4. Join the last point of the oblique ray C with point B.
5. Draw parallels using your set square to the segment BC from the other points on the ray.

Here we have divided the segment in five parts, but you can divide the segment in as many parts as you need: