

DNL - 6^e – Construction of a Perpendicular

Activity #1 How to draw a perpendicular line to a segment, going through a specific point above?

Using a point above the line

Perpendicular lines can be constructed by marking a point above the first line segment, through which the second, perpendicular, one will pass.

mark point above line segment
draw a line segment

draw two arcs from A
arcs from A cross line at two points

arcs from B and C must be same distance from point A

line segment AD is perpendicular to line BC
line must cross through D

Draw a line segment and mark a point above it. Label this point with a letter, for example, A.

Place a compass on point A. Draw two arcs that intersect the line segment at two points. Label these points B and C.

With the compass on points B and C, draw two arcs of the same length beneath the line segment. Label the intersection of the two arcs point D.

Now, draw a line segment from points A to D. This is perpendicular (at right angles) to line segment BC.

Practice doing this on several examples.

Activity #2: How to draw the perpendicular bisector of a segment?

Constructing a perpendicular bisector

A line that passes exactly through the midpoint of a line segment at right angles, or 90°, is called a perpendicular bisector. It can be constructed by marking points above and below the line segment.

line PQ

draw arc from point P
set compass length to just over half of line PQ

arcs from Q will cross arcs from P
keep compass at same distance
place compass on point Q

connect X and Y with straight line
line segment XY is perpendicular to segment PQ

First, draw a line segment, and label each end point, for example P and Q.

Place a compass on point P and draw an arc with a distance just over half the length of line segment PQ.

Draw another arc from point Q with the compass kept at the same length. This arc will intersect the first arc at two points.

Label the points where the arcs intersect X and Y. Draw a line connecting X and Y; this is the perpendicular bisector of PQ.

Practice doing this on several examples.