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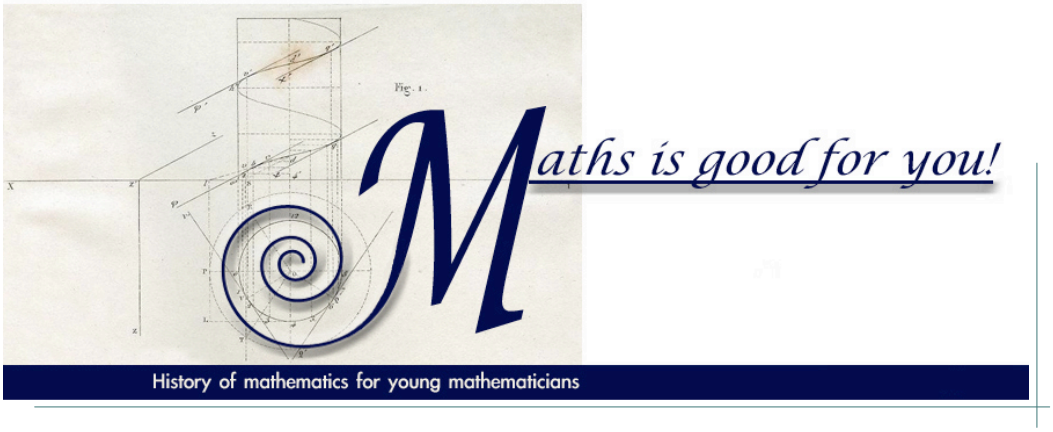
Worksheet Perspect1

Teacher

Student

Class



Perspective

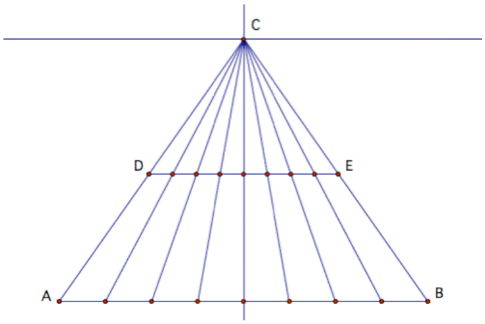
This worksheet is based on the theory developed by Leon Battista Alberti (1407-1472) an Italian architect, writer, and at times, mathematician. His work in mathematics was generally limited to the investigation and writing on linear perspective, and on studying cryptography. The method of perspective described below was given by Alberti in his famous book *De pictura* (meaning *On painting*) published in Latin in 1435, and in Italian as *Della pittura* in 1436. This book however, did not have any illustrations – they were provided by Alberti's successor Piero della Francesca (1420-1492) in his own work *De prospectiva pingendi* (published in 1474, meaning *On perspective for painting*).

See www.mathsisgoodforyou.com/geometry/perspective.htm for further details on the history of linear perspective.

← Alberti

Piero ↓

The whole theory of linear perspective is based on few simple concepts: theory of proportions being one. Looking at the triangle ABC, it can be described as follows:
Line AB is divided into several parts. Another line, DE is drawn parallel to it. If lines from emanating from the points of AB all converge to C, DE will be divided in the same proportion as AB.

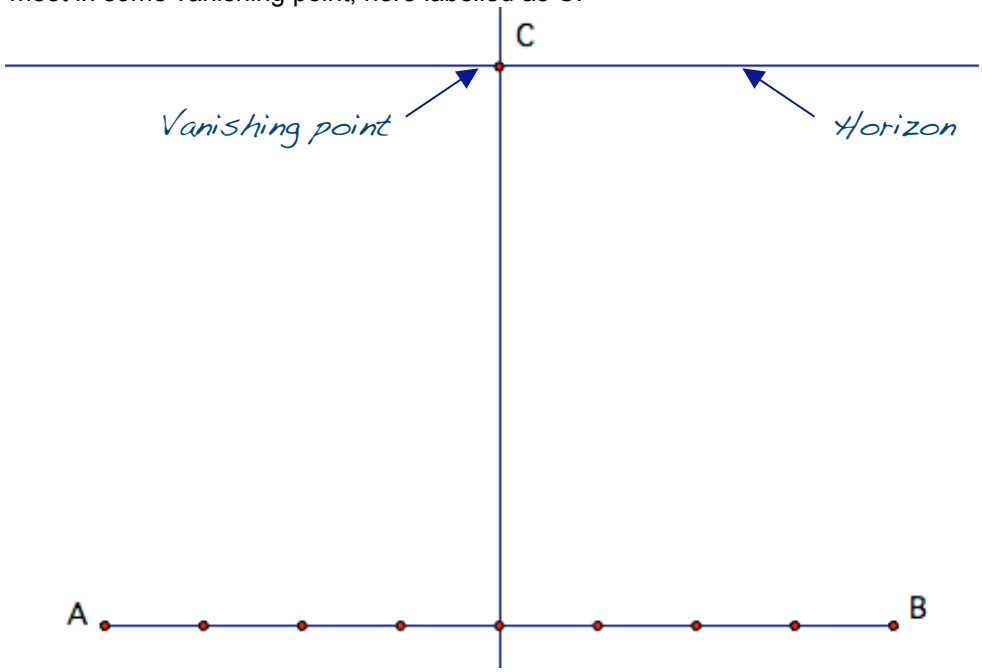


The proof uses similar triangles: see whether you can find which ones and how you would prove it.

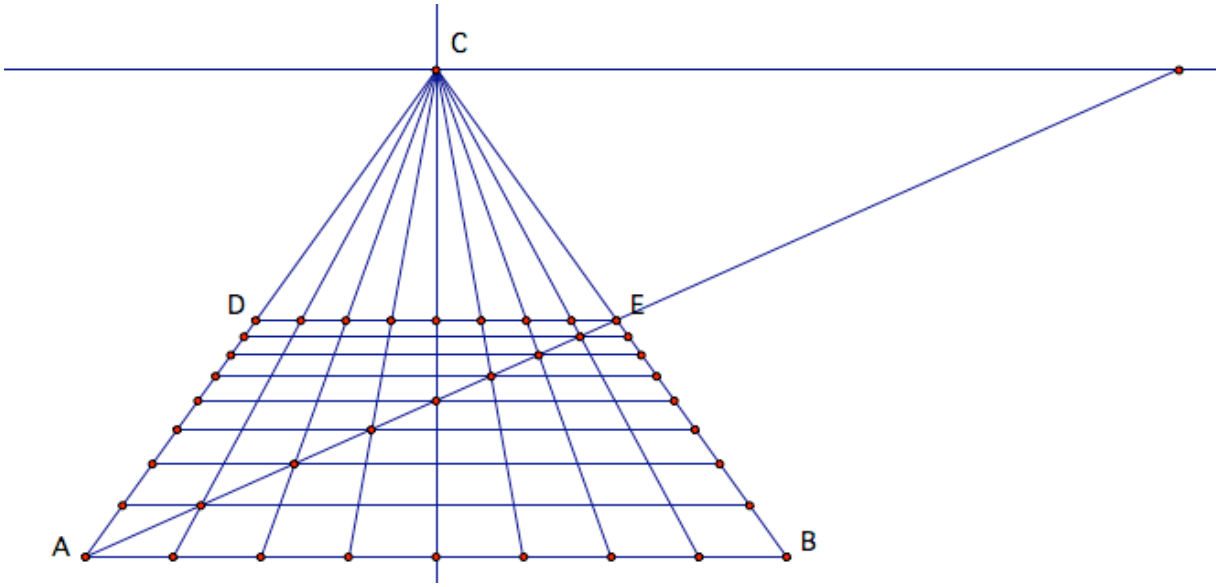
Construction – how to make a drawing using principles of linear perspective

First we will start from drawing a segment of a straight line, of any length. This line is divided into some number of equal parts.

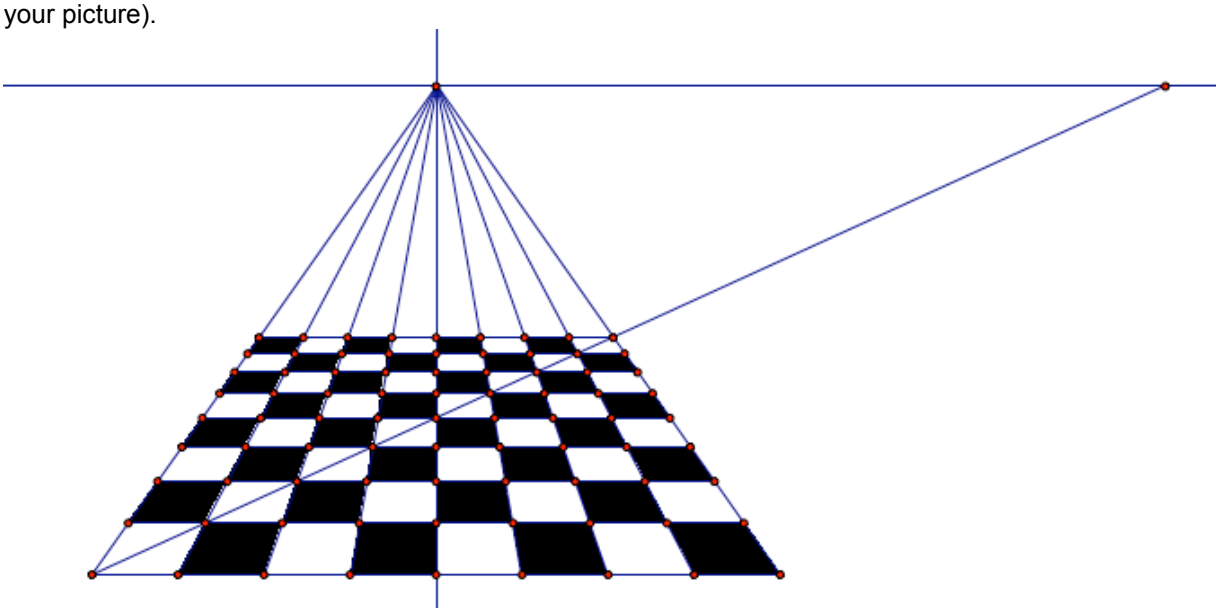
Imagine that you are standing some way away from this line – all the lines perpendicular to it and going into the distance will appear to you to meet in some vanishing point, here labelled as C.



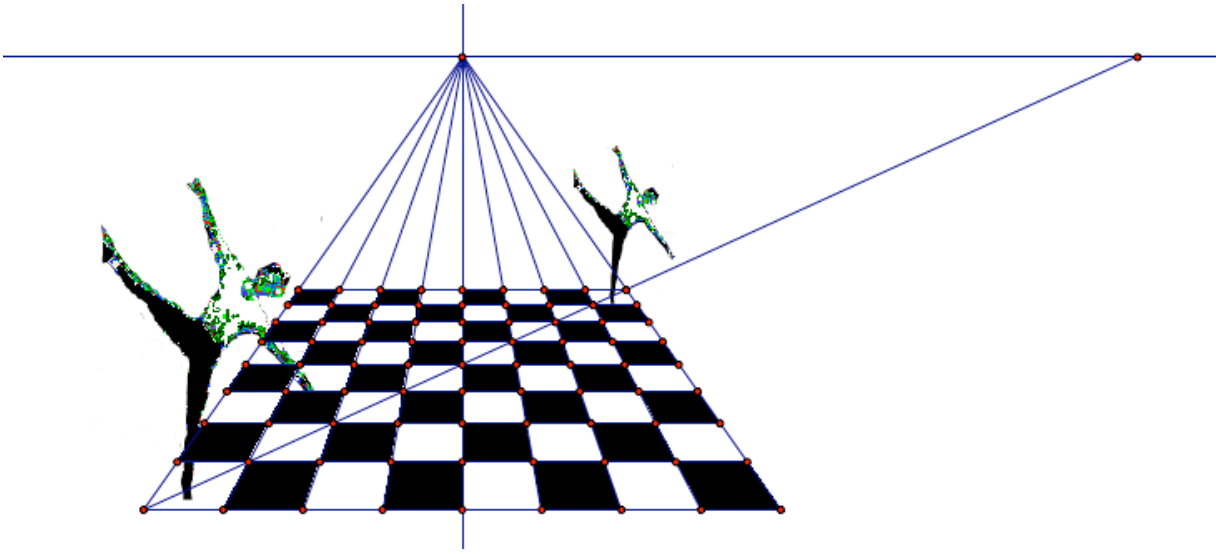
This vanishing point is placed on the horizon – all the vanishing points meet there. Imagine now that the original line is an edge of a square. Diagonal that goes from one of its vertices will also end up on the horizon. This diagonal cuts the perpendicular lines which give you points to draw lines parallel to the original edge of the square.



This gives a basis for the pavimento (pavement – base for all the players to appear on the stage of your picture).



So now you can place your players – in Alberti's and Francesca's time they were usually religious personalities, but we can now put people like dancers enjoying themselves…



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