projection plane

object

projection

projector

Parallel projection
An orthographic projection
An oblique projection
An oblique projection
Perspective projection

projection plane

object

projector

projection

projector

center of projection
One-point perspective
One-point perspective
Two-point perspective
Two-point perspective
Three-point perspective
One-point perspective: one principal vanishing point
Two-point perspective: two principal vanishing points
Three-point perspective:
three principal vanishing points
An example of 3D viewing
Orthographic projection is very simple...
Oblique projection
Parallel
Parallel
GIOTTO
THE «LEGEND OF ST. FRANCIS»
IN THE ASSISI BASILICA

EDITORCE MINERVA
ASSISI
16th century copy of Leonardo da Vinci’s *The Last Supper* (1498)
Convent of Santa Maria delle Grazie (Refectory), Milan
Geometric perspective

*Christ Handing the Keys to St. Peter* by Pietro Perugino (1481-82)
Fresco, 335 x 550 cm Cappella Sistina, Vatican
Perspective transformation
Camera obscura (Mo-Ti, China, 470-390 BC); Aristotle, Euclid (~350-300BC)
Argument 1: sudden increase of realism (incl. shading) between 1425 and 1430

Masolino da Panicale 1425

Robert Campin 1430
Argument 2: geometry of textures

Masolino da Panicale ~1425

Antonio and Piero del Pollaiuolo 1467-8
Argument 3: curved mirrors (and lenses) were known

Arnolfini Wedding
van Eyck 1434
Argument 4: precision and distortions

Hans Holbein *The Ambassadors* 1533
Argument 4: precision and distortions

Hans Holbein The Ambassadors 1533
Argument 4: precision and distortions

Hans Holbein *The Ambassadors* 1533
Argument 5: reflections and refractions

Frans Hals 1626-8
Argument 6: drawing speed

Still life, Cotan 1602
Another use of perspective:
Piazza del Popolo (Rome) : Bernini, 2\textsuperscript{nd} half of 17\textsuperscript{th} century
Another use of perspective:
Piazza del Popolo (Rome) : Bernini, 2\textsuperscript{nd} half of 17\textsuperscript{th} century
Non-linear perspective

See also: