View of the High Street, Oxford, Joseph Mallord William Turner (1775-1851), 1810
LI197.4 oil on canvas

Objects and artworks at The Ashmolean show how the use of perspective in art has changed and developed across different cultures and times.

Perspective is a technique used by artists to create the illusion of three dimensional space on a flat, two dimensional surface.

Features of perspective:
- Objects are shown smaller as they get further away
- foreshortening- a visual effect that causes an object in the distance to appear shorter than it actually is, by angling it towards the viewer
- use of a horizon line
- one or more vanishing points in a scene with parallel lines
- one point perspective: a single vanishing point
- two point perspective: parallel lines at two different angles and vanishing points
- zero-point perspective: in non-linear scenes with no vanishing point, e.g. in a large landscape.

Athenian black-figure amphora attributed to the Priam painter, from Ceveteri, Italy, 550-500BC
AN1885.668   Gallery 16: The Greek World

The goddess Athena climbs into a chariot as Herakles leads a horse. In ancient times, scale was used to represent objects or people according to their importance - the largest figures in a composition were the most important. Overlapping was also used to show the relative place of figures. Vertical persective, where a group of nearer objects or figures was shown below those further away. These techniques were used in Ancient Egypt and Greece.

Perspective in the Ancient world

Assyrian reliefs from the Southwest Palace at Nineveh, showing Babylonian captives and Assyrian soldiers 700BC
AN1922.1575 Gallery 19: Ancient Near East

Depth of field is created by overlapping objects, people and horses. These fragments of sculptures are part of a series of reliefs depicting Sennacherib's campaign to Babylonia in 702. Captive women and children are led by Assyrian soldiers who wave the decapitated heads of their enemies. Date palms are characteristic of the region.

These gypsum slabs originally lined the mud brick walls of important rooms and courtyards in the palace. They show supernatural figures and the king's triumphs in war and the hunt. They were originally painted and would have been part of a decorative scheme which included wall painting.

Discuss
- What examples of overlapping can you see?
- How is the background shown?
- Why are people only shown in profile, from the side?
- How is deep water represented?
- Who are the most important characters? How do you know?
- Why do you think these sculptures were made?

Early Medieval perspective

The Annunciation, Paolo di Dono, called Uccello (1397-1475)
tempera and oil, with traces of gold, on panel
WA1850.7 Gallery 42: Early Italian Art

Early Medieval artists were aware of the general principle of varying the relative size of elements according to distance. During this period, the use and sophistication of attempts to show distance developed steadily, but had no theoretical basis or system. This painting by Uccello is likely to have been painted in the early 1420s. It shows his interest in perspective, and the figure types and decorative approach are typical of his work at the time.

Also see:
The Assassination and Funeral of Julius Caesar, Apollonio di Giovanni (about 1415/17- 1465) and Marco del Bueroni Giamberti (?1403-1480)
tempera and gilding on panel
WA1850.27

Discuss
- What event is being portrayed? How has the artist emphasised its significance?
- Look at the lines in the painting. How do they work together ?
- What is the significance of the use of blue and red paint and gold?

The Italian Renaissance

The Hunt in the Forest, Paolo di Dono, called Uccello (1397-1475), about 1470
tempera and oil, with traces of gold, on panel
WA1850.31 Gallery 43: Italian Renaissance

Uccello had a lifelong interest in geometry and perspective and was renowned as a painter of perspective, animals and landscapes. This 'spalliera' painted on panels, would have been set into the panelling of a room at shoulder height so it could be seen at eye level. The fairy-tale noctural scene is a carefully structured composition. A hunting scene with figures in contemporary dress is a virtually unique subject from the period.

During conservation, infra-red technology revealed how Uccello mapped out the painting on the panel's surface using charcoal to mark the main perspective lines, horizon and central lines and orthogonal lines from either side of a central vanishing point. He placed people, animals and trees using the automatic system scaling system that this basic grid provided. However, the blue line of the river does not converge on the central vanishing point, suggesting other ways of viewing the scene. The dramatic tension between logical perspective and the vitality and colour of the hunt creates drama and movement. The huntsman's spears, cut branches and logs, the area of water and the decreasing size of the figures and trees all create a sense of depth.

By developing the theoretical rules of persective using geometry and mathematics, art moved from being seen as craft or decoration to becoming a respected discipline in its own right.

Development of the principles of perspective

During the Italian Renaissance the mathematical rules for perspective were developed using vanishing points and became widely available. Filippo Brunelleschi developed a geometrical method of perspective. Soon, most artists in Florence and across Italy used geometrical perspective in their paintings. Alberta Battista Alberti wrote a treatise on methods to showing distance in painting using mathematical principles. Piero della Francesa developed these ideas in the 1470s using illustrations. Painters, including Paolo Uccello, studied the mathematics of linear perspective, wrote treatises on it and incorporated it into their work. Ideas about perspective gradually spread from Florence to Europe and beyond.

Discuss
- Which words describe this picture?
- Where is your eye drawn? Why?
- Where are the horizon line and the central point of the picture?
- What are the main colours? Where are they brightest? What impact do they have?
- Where is the source of light in the picture?
- Find examples of the scale of animals, people and trees diminishing towards the centre.
- What direction are the people, animals and spears pointing? What effect does this have?

Western Art

View of the High Street, Oxford Joseph Mallord William Turner (1775-1851), 1810

oil on canvas LI197.4 Gallery 66: 19th Century

This oil painting of Oxford's High Street is unique in Turner's output. The view has hardly changed since he painted it. It is highly accurate except that Turner straightened the street to show Carfax Tower in the distance. Through the use of perspective the eye is drawn to a single vanishing point. Turner painted over 30 watercolours of Oxford, the largest group of any one place.

The painting was commissioned by James Wyatt, an art dealer based at 115, High Street in 1809 who wanted to sell engravings of the painting in his shop. In a large collection of letters, they discussed the number, character and costumes of the figures as well as architectural details.

Discuss
- How does the use of perspective influence the size of the buildings and people in the distance?
- Describe the buildings and people.
- What are the people doing?
- Where is the vanishing point in the picture?
- Compare and contrast this view with Oxford High Street today. Why did Turner 'move' Carfax Tower into view at the far end?
- Why might Turner have chosen to paint this scene?
- Which city street scene would you paint?

The Artist

Turner was born in 1775 in London. Deciding to become an artist aged 14, he entered the Royal Academy Drawing Schools in 1789. He supplemented his income by drawing for architects. His interest in architecture is evident in his work throughout his life. He first exhibited at the Royal Academy in 1790 and was appointed president in 1845. He completed canvases in the exhibition room during 'varnishing days', private views for patrons, showing off his technical skills. Early in his career, he was supported by a wealthy group of patrons and collectors who bought and commissioned work and funded his studies abroad. Turner toured in the summer and worked in the studio during the winter throughout his adult life. Early tours were within Britain and later travels took him to Switzerland, Italy and France.

Turner is best known for his atmospheric landscapes. His loose brushwork and vibrant use of colour shocked his contemporaries and was a forerunner of later movements such as Impressionism. He was modern in his choice of subject, capturing cities, ports, the countryside and ordinary people as well as political events and issues. In later life, he was ridiculed by critics who accused him of extravagance and exaggeration. He was a good businessman, opening his own gallery in 1804 and used print publishing to increase circulation of his work. Turner was a private man, who led an unconventional life. He planned his posthumous reputation carefully and bequeathed his work to the nation. He died in1851.

Zero-point perspective
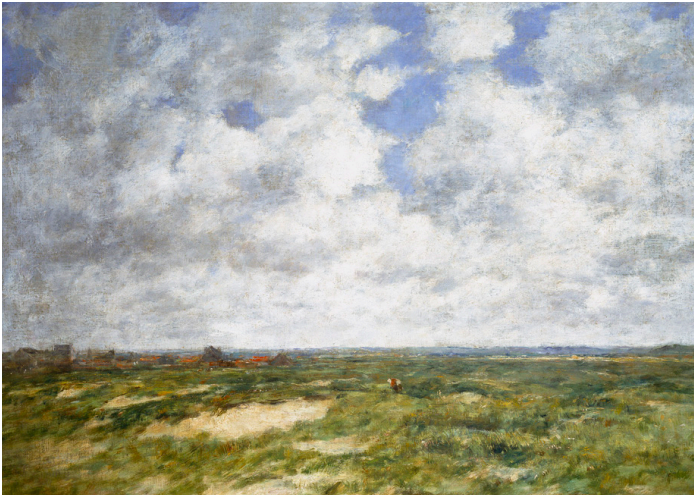
Berck, Cloudy landscape, Eugene Boudin (1824-1898), 1882

oil on canvas WA1988.291 Gallery 65: Pissarro

Boudin uses zero point perspective, often used in large scale landscapes where there are no parallel lines. A perspective without vanishing points can still create a sense of depth.

The unbroken horizon and solitary figure in the foreground emphasise the windswept emptiness of the scene. As a contemporary critic notes of the Impressionists 'they render not the landscape, but the sensation produced by the landscape'. They depicted the landscape of France and scenes from modern life.

Also see:

Landscape near Pontoise, Camille Pisarro (1830-1903), 1872

oil on canvas WA1940.4

Landscape with Fishermen at the Mouth of a River, Georges Michel (1763-1843)

oil on canvas WA1937.46

Discuss
- Can you see the vanishing point which is the horizon line, running horizontally across the picture?
- How has the artist used scale to portray the foreground and background? Look at the sky, clouds and buildings.
- How does this painting make you feel? Compare and contrast the use of perspective with The Hunt in the Forest and The High Street, Oxford.

Eastern perspective

Satsuma style dish, Kinkozan Sobei VII (1868-1927), around 1900 EA1992.71 Gallery 36: Japan from 1850

Eastern perspective uses vertical prespective, where the higher up the picture the object is, the further away it is from the viewer. There is no fixed vanishing point, or fixed viewpoint. Western linear perspective was first introduced into Japan in the eighteenth century while Japan was still under a 'closed country' policy, but became much better known in the late nineteenth century after Japan was opened up to the West and was rapidly westernised.

Discuss
- Describe what type of place this is. What can you see in the distance and foreground?
- What are people doing? Where is the viewer in relation to this scene?
- How is eastern perspective technique used here?

Working with pictures: key questions

- What words sum up the painting? Explain your choice.
- What is the first thing that you notice?
- What do you think is happening? Why?
- What questions do you have about the painting?
- What do you notice about the colour, light and composition of the painting?
- What is the weather like? What sounds can you hear? What can you smell?
- Does this scene remind you of any situations, feelings or stories?
- If you could put yourself into the picture where would you go and why?
- If this was a scene from a film what would happen next ?
- Give the picture a new title.
- Do you like this picture? Why or why not?'

Lines of enquiry: Art & Design

- Use the mathematical principles of perspective to create your own work. Experiment with one point, two point and zero point perspective to create a variety of pieces of work to compare and contrast.
- Find further examples of artwork across different cultures and times which show work which has not used perspective then pieces which demonstrate the principles of perspective. Create a timeline or map of images with annotated explanations and your own response to the images.
- Consider other art forms or styles that use mathematics or geometry such as Op Art. Create your own work using these techniques.
- Find examples of contemporary art which have played with the rules of perspective or not used them at all to create innovative views and impressions of place and space.

Cross curricular links

- History: explore the historical context of the Renaissance and how ideas about maths and science influenced different areas of life including art, literature and science.
- Mathematics: learn about the mathematical principles behind perspective and experiment with different models.

Further resources

Ashmolean Eastern Art Online:
www.jameelcentre.ashmolean.org/

Ashmolean Western Art Online:
http://www.ashmolean.org/departments/westernart/

Ashmolean Education Learning Resources:
http://www.ashmolean.org/education/resources/

View of the Dolo on the Brenta Canal, Giovanni Antonio Canal, called Canaletto (1697-1768)
oil on canvas WA 1855.187 Gallery 49: Britain and Italy

Education Department
Ashmolean Museum
Beaumont Street
Oxford OX1 2PH
T. 01865 278015
E. education.service@ashmus.ox.ac.uk

www.ashmolean.org/education