Thinking 3D

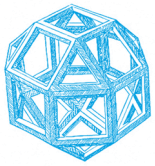
FROM LEONARDO TO THE PRESENT

ART TRAIL

Look

Think

Write/draw

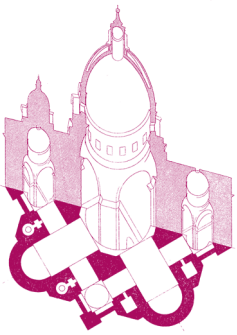


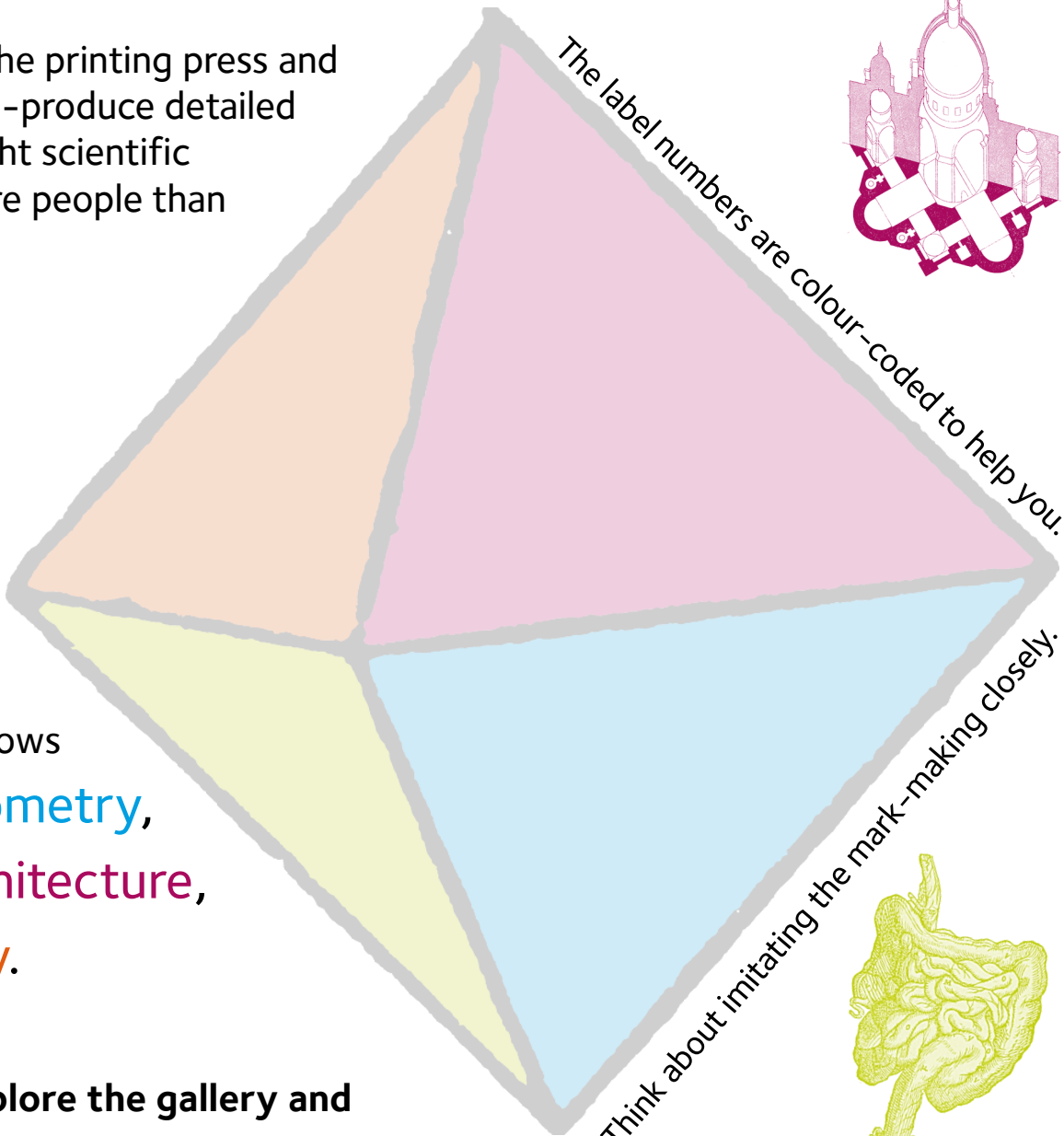
Ever since the first cave paintings, humans have been driven to represent the 3D world on 2D surfaces.

During the Renaissance, from around 1400–1600, thinkers began systematically investigating the world through dissection, mathematical calculations, telescopes, and archaeological digs.

Artists developed new techniques and technologies to accurately depict what they saw. But realism wasn't always the main goal; a more abstracted or schematic drawing could bring clarity to the overwhelming complexity of the human body or the stars. Abstraction also allowed artists to represent ideas created in the human mind, but never seen in reality.

The invention of the printing press and new ways to mass-produce detailed illustrations brought scientific knowledge to more people than ever before.





This exhibition follows four threads: geometry, anatomy, architecture, and astronomy.

To start, explore the gallery and sketch a small detail of an item from each of the four subjects on this octahedron.

Name: .....

From Earth, the 3D cloud of stars looks like the curved surface of a dome in the sky, covered in points of light. Since ancient times astronomers have identified patterns of bright stars: constellations.

2

Find a 12th-century image of the scorpion constellation.

Did you know that our 88 constellations today include more recent inventions like the chameleon, the pendulum clock, and the microscope?

What do you see in the sky? Join the stars below and doodle some new constellations of your own.

47

48

Find an early example of pirated art. What motivated the artists to copy Galileo's images in his book, *Starry Messenger*?

Leonardo da Vinci gave this advice to young artists:

"The youth should first learn perspective, then the proportions of objects. Then he may copy from some good master, to accustom himself to fine forms. Then from nature, to confirm by practice the rules he has learnt."

Do you agree that learning theory, then copying other art, then drawing from nature is the best way to learn to draw?

When is it acceptable to imitate art?

"Perspective is to painting what the bridle is to the horse, the rudder to a ship."
Renaissance artists were fascinated by perfecting mathematical linear perspective, and foreshortening so that they could represent 3D structures on the 2D page.

Look at some examples and try sketching the gallery, using this single-point perspective grid. Do the guidelines help?

15

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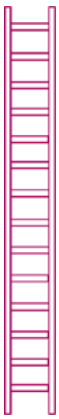
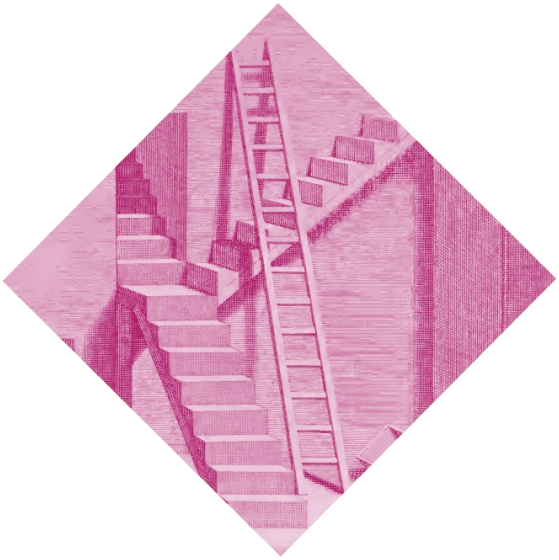
Andrea Pozzo decorated churches, and was an expert at using mathematical perspective and skilful shading to create illusions of 3D space.
This page shows an imagined space with stairs and a ladder.

On the right-hand side are two schematic views. Where is the imaginary artist sitting to draw these? .....&.....

Sketch a diagram of the room seen from the front. Which architectural details does this way of drawing miss out?



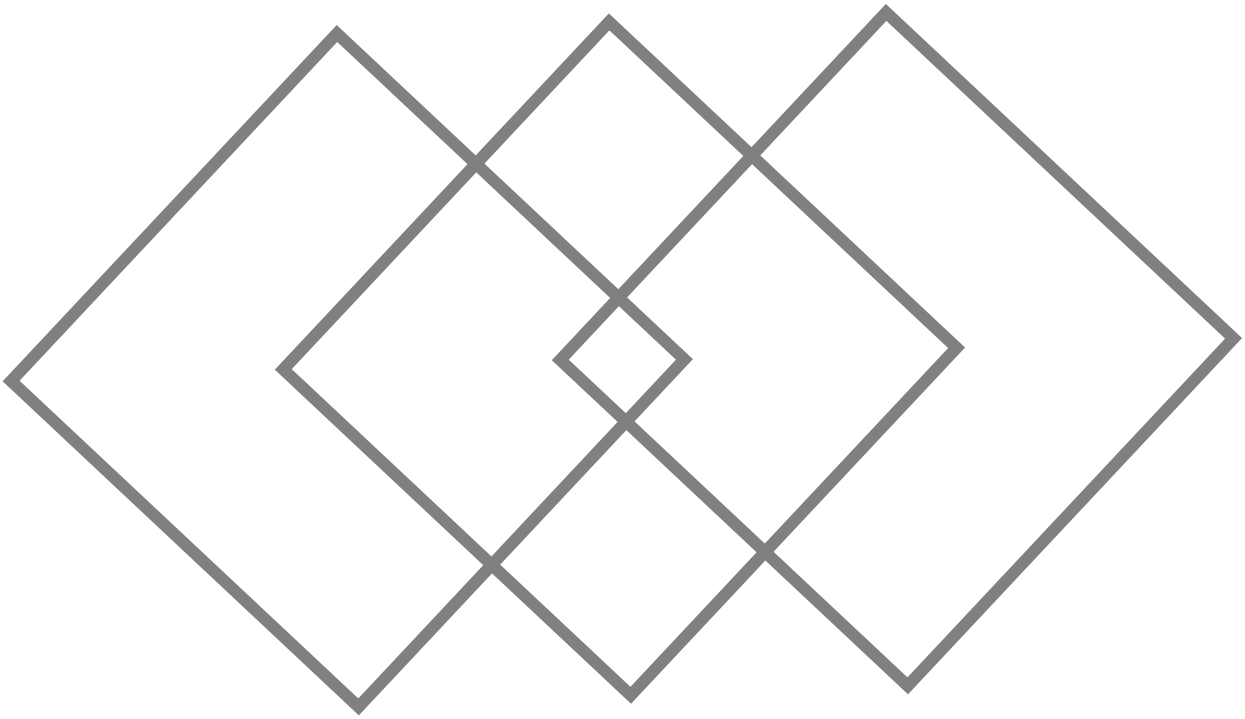


"Be very careful, in painting, to observe, that between the shadows there are other shadows, almost imperceptible, both for darkness and shape..."

Hatching, crosshatching, smudging, stippling and contour shading are drawing techniques that help capture light falling on an object and create the illusion of 3D form and texture.

Look closely at mark-making techniques in some of these items.

Copy three different techniques here, with overlaps.



Look at a page from Leonardo da Vinci's sketchbooks. These are ink drawings. Now compare this with one of the printed items.

To mass-produce an image by making a block to print from, a Renaissance printmaker would have to cut or scratch a mirror-image of the artist's 2D drawing into wood or metal, creating a 3D relief.

How might this printmaking technique affect the types of marks that could be reproduced?

To find out more, you could research woodcut, engraving, drypoint, etching, and lithography.

We hope you enjoyed your visit to Thinking 3D.

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