

# Thinking 3D

## FROM LEONARDO TO THE PRESENT

Leonardo da Vinci was a key figure of the Renaissance, the European revival of art and literature from 1400-1600.

There are three pages from Leonardo's notebooks in the frames on the right hand wall.



## ANATOMY TRAIL



**In these pages, which anatomical structures has he drawn?**



**Look around the exhibition and find different examples of how anatomy has been represented:**

- Hand-drawn illustrations
- Black and white printed illustrations
- Colour illustrations
- Lift-up flap paper models
- Photography
- Plastic models

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**If you could use only one of these types of illustration to help you before you performed an operation, which one would be most useful?**

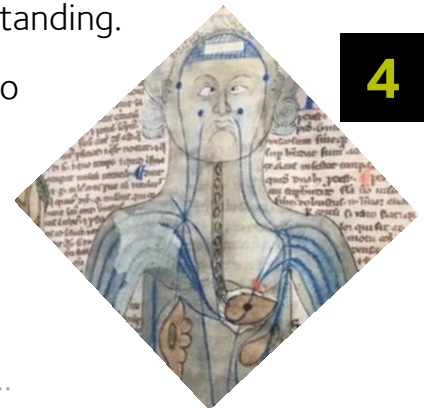
Over the centuries, both artists and doctors have tried to find ways to illustrate the messy complexity of anatomy to improve teaching and understanding.



Medieval anatomy texts were some of the first books to include diagrams. Different organ systems were separated into five pictures on different pages.



**Which organ system is shown in this hand-written and illustrated 13<sup>th</sup>-century manuscript?**



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During the Renaissance artists and physicians began to dissect and closely observe the body, instead of relying on descriptions from ancient Greek & Roman texts. Printing technology allowed text and images to be mass-produced.



**Find an example of an anatomical image that looks like it has been drawn from looking at a dissected body. What clues can you see?**

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The body is three-dimensional, so there is a limit to what can be shown on a two-dimensional page. One way to overcome this problem was to build paper models. Lift-up flaps reveal layers of complexity beneath the surface.



Find these examples of paper lift-the-flap models. Some are assembled, others are not.



**When was each of these models published?**

Vesalius (female and male bodies): .....

Remmelin (anatomy in colour): .....

Bartisch (human eye): .....

Witkowski (human eye): .....

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**Which of these models do you find most effective? Why is this?**

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.....



In the early 20<sup>th</sup> Century anatomists used stereoscopic photography to trick the eye into seeing 3D images of anatomy.



**What are the advantages and disadvantages of using Arthur Thompson's stereoscopic slides to study anatomy?**

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In the 21<sup>st</sup> century, we can use 3D printers to create anatomical models. Find a 3D print of the brain or the heart on the display near the entrance.



**What can these 3D printed models add to our understanding of anatomy?**



**Having followed this Thinking 3D anatomy trail, how has your thinking changed about the best way to represent anatomy?**

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Doctors aren't just interested how human body looks, but how it works. The *Anatomy & Oxford* display case at the end of the room tells the story, from Leonardo to the present day, of how drawings, models and MRI scans helped us understand how blood circulates from the heart.

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