

ACTIVITY 09 | SECONDARY | ⌚ 60 MINUTES



Brilliant bodies

KS3
Science

Third or Fourth level
Expressive Arts. Sciences

Brilliant bodies

In this activity, students will create a diagram of the human body as Leonardo observed it and a life-size diagram of where we now know the organs to be.

They will compare his understanding with our reality and ask how, 500 years ago, he was able to be so accurate. Students will invite Leonardo to time travel to a 21st-century operating theatre to observe what further anatomical discoveries led to.



Leonardo would have undoubtedly been fascinated by digital technologies. [The Leonardo da Vinci: Anatomy](#) app brings his sketches to life with integrated 3D anatomical models, made interactive by using rotational technology.

Focus image: [The major organs and vessels, c.1485–90 \(RCIN 912597\)](#) 



IN THIS ACTIVITY PUPILS WILL:

EXAMINE Leonardo's anatomical drawings.

DESCRIBE the similarities and differences in knowledge between then and now.

EXPLAIN the function of different organs.

COMPLETE an anatomical drawing similar to Leonardo's.



WATCH A SHORT FILM

See Martin Clayton talk about Leonardo's amazing talent for observation in this film titled [Why was it important to Leonardo to draw from life?](#)

Inspiration

Leonardo was fascinated by the human body and how it worked. He understood that we learn by investigation and observation and, throughout his life, made detailed drawings of both the outside and inside of the human body.

He was one of the first people to recognise the need to carefully observe and draw the body in order to uncover its mysteries.

Leonardo carried out dissections of 30 bodies over 500 years ago, in low light, with few instruments and little experience. However, his drawings are fantastically accurate when compared with anatomical photographs and diagrams from today.

Leonardo was a skilled dissector, Martin Clayton, Head of Prints and Drawings at Royal Collection Trust, says that it is a myth that Leonardo dissected illegally. His notebooks suggest he dissected bodies to advance society's knowledge.



To hear about Leonardo's amazing talent for observation, listen to Martin Clayton in this film titled [Why was it important to Leonardo to draw from life?](#)

NOW DISCUSS THESE QUESTIONS:

How did Leonardo draw from real life?
(he used cadavers)

Why did Leonardo think this was important?
(to see how things worked for himself)

Look at the image resources [The major organs and vessels, c.1485–90 \(RCIN 912597\)](#) and [The cardiovascular system and principal organs of a woman, c.1509–10 \(RCIN 912281\)](#)

NOW DISCUSS THESE QUESTIONS:

What do you notice about the detail in the drawings?

Why were drawings like this so important 500 years ago?

Why do we need diagrams like this today?

What might the impact have been on society, if Leonardo had been able to publish them?

STEP 01

Leonardo's body

Print off and look at the drawing *A standing male nude (RCIN 912594)*.

Explain that Leonardo's learning was lifelong, and his work was at the cutting edge of research.

Then, students can cut out the internal organs from the 'Cut out' activity sheets. Ask the students to annotate the body depicted in Leonardo's drawing to show the locations of the organs. This could be done as a whole-class activity: using the organ cards, one student could select a drawing and the class can locate its correct place on the outline of the body.

Alternatively, students can work in groups, completing a Leonardo body diagram themselves by cutting out the different organs and annotating them on the body.

OPTIONAL

If possible, print off the Leonardo drawing to a larger size. Students could place the organ cards in their correct place over Leonardo's original image.

STEP 02

Our bodies today

Students will then create a life-size diagram of their own internal organs. First, one student lies on the large paper on the floor while someone draws an outline around them.

Using a text book for reference, draw on the key organs, including: heart, lungs, liver, intestines, stomach. Also add the skull, some bones and muscles. Remind students that they are following Leonardo's footsteps by creating diagrams that show how the body works, and to be as detailed and accurate as they can.

OPTIONAL

Students could see a live or online dissection of some animal organs and produce their own detailed anatomical drawings - you could use liver, kidneys and hearts - from a butcher's or supermarket.

STEP 03

Compare

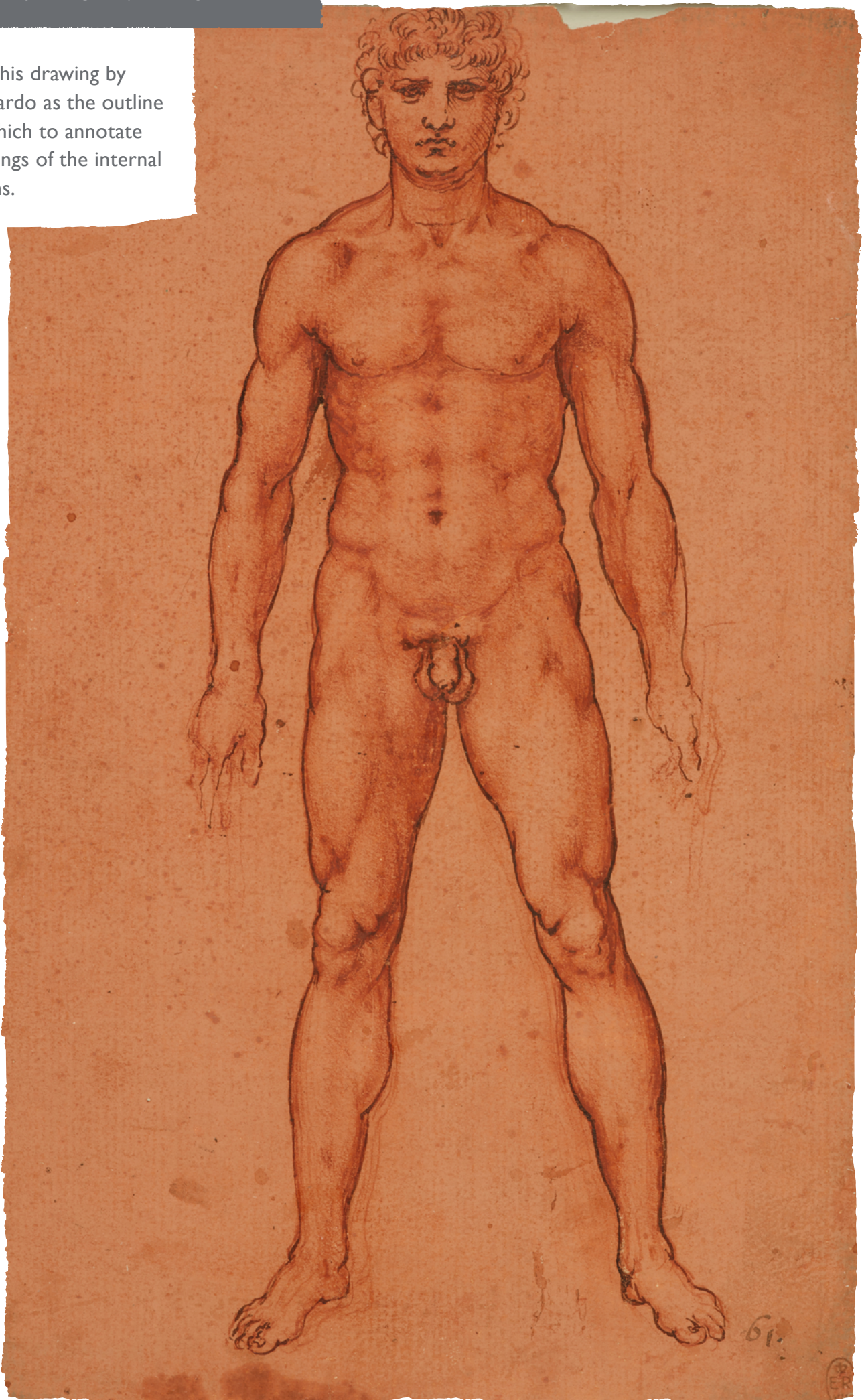
Students should then examine the two pictures that they have created alongside Leonardo's drawing *The major organs and vessels c.1485-90 (RCIN 912597)* and complete a Venn diagram of similarities and differences, using the labels 'Leonardo's body' and '21st-century body'.

Students could first look at the position of the organs, then compare each organ in turn and finally look at how the organs are connected.

To support students, the following questions could be asked:

- Did Leonardo know where the organs were in the body?
- Why might he have found it difficult to get the position of organs correct?
- Why are the drawings of individual organs, bones and muscles so accurate?
- What difficulties would he have faced in completing these detailed drawings?
- What did he not know about the body?

Use this drawing by Leonardo as the outline on which to annotate drawings of the internal organs.

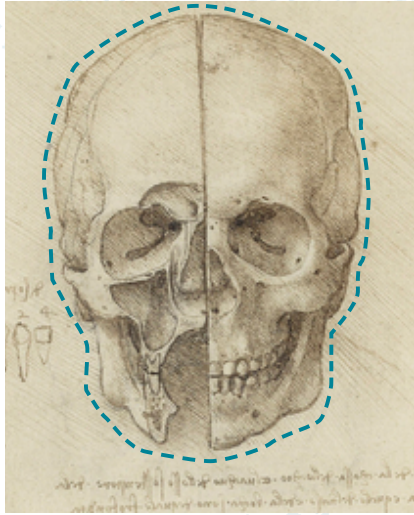


A standing male nude, c.1504–6 (RCIN 912594)

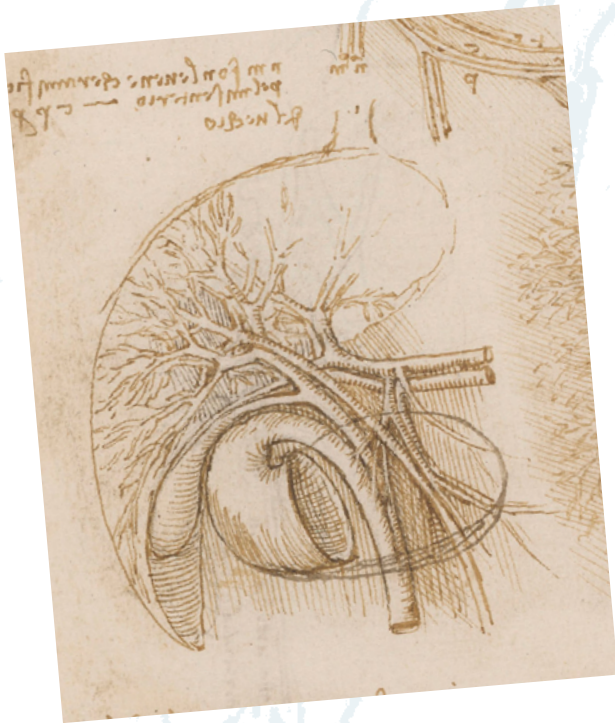
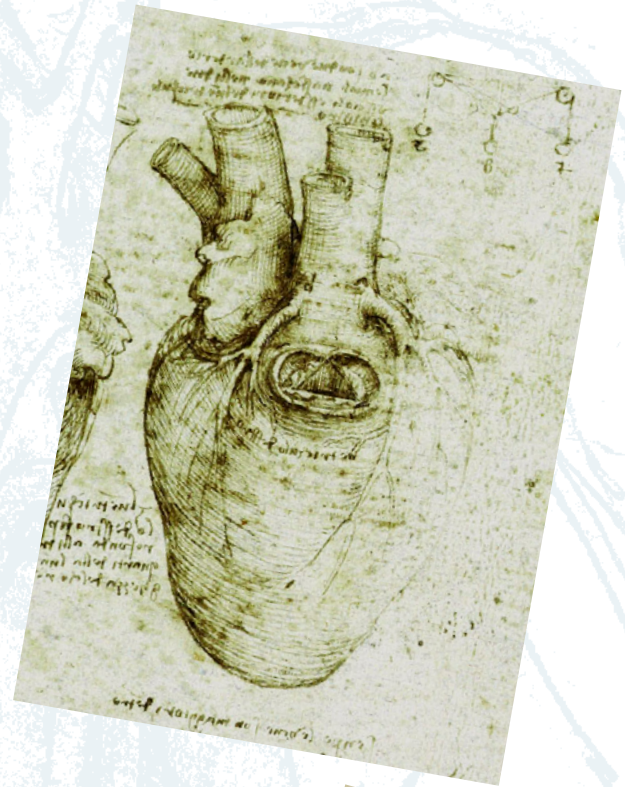


Cut out sheet

Cut out the drawings of the internal organs.



Clockwise from top left: skull, legs and hips, foot, intestine, hand





Resources

EQUIPMENT

- Questions and copies of the Leonardo drawings
- Large paper, like wall-lining paper (to draw around a student).
- Printed resources on A3 paper
- 'Cut out' activity sheets
- Magnifying glasses
- Text books, or internet, showing photographs, diagrams and X-rays of internal organs and organs systems, including skeletal, respiratory and digestive systems
- Animal livers, kidneys and hearts to draw (optional)
- Martin Clayton's [video](#)

RESOURCE IMAGES



[*The major organs and vessels, c.1485–90 \(RCIN 912597\)*](#)



[*The cardiovascular system and principal organs of a woman, c.1509–10 \(RCIN 912281\)*](#)

FANTASTIC FINISH



Write a letter to Leonardo inviting him to see an operating theatre in action. Explain what technology has improved today and how it saves people's lives, for example with pacemakers and kidney dialysis.

Produce an exhibition based on your anatomical drawings in a visible area of the school.

This could include the life-size drawing with organs, the detailed drawings of hands and feet and an anatomically correct drawing of the body.