ACTIVITY 03 | PRIMARY

Inside out

What's inside my hand?

KS2
Art and Design, Science

Second level
Expressive Arts, Sciences

Inside out

What's inside my hand?

Leonardo claimed to have performed 30 human dissections, with the subjects mainly being criminals who had been executed, or those who had died with no-one to claim their bodies for burial, as in *Recto: the fetus in the womb. Verso: Notes on reproduction,with sketches of a fetus in utero, etc c.1511 (RCIN 919102)*.

Leonardo's drawings were often impressively accurate, providing great levels of detail in an age before X-rays or cameras.

IN THIS ACTIVITY PUPILS WILL:

EXPLORE Leonardo's work compared to present-day medical practices, including anatomical illustration.

INVESTIGATE the human skeleton and muscles from a range of stimuli: Leonardo's drawings, their own hand, science books and online.

BEGIN to describe the functions of the parts.

USE line, shape, form, colour, tone, and texture to paint the inside of their hand.

Focus image: *Recto:The bones, muscles and tendons of the hand.Verso:The bones of the hand, c.1510–11(RCIN 919009)*

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.

STEP 01

Anatomical drawing

Begin by talking with the class about why Leonardo dissected dead people (they were still finding out how the human body worked, he used his studies for formal paintings).

Before starting the activity, compare the Leonardo hand-drawing provided with modern anatomical illustrations or X-rays that can be found online, to explore the different parts of the hand.

STEP 02

Skeletons

First look at the bones. Start investigating the structure of the hand by making a hand skeleton, creating bones out of bendy paper art straws and joining with masking tape.

STEP 03

How the hand works

Prepare for the children's own drawings by using one of their hands to feel muscles and tendons at work on the other hand as they wiggle and bend fingers.

Reinforce basic knowledge of muscles, bones, ligaments and tendons. Can they identify the long flexor tendons extending from the forearm muscles through their wrist and palm to the fingers and thumb?

Use Leonardo's drawings and modern anatomical illustrations to help pupils make sense of the tissues and structures they can feel.

BEFORE YOU START

LOOK AT ARTIST'S TOP TIPS

STEP 04

Identify

Paint on top of the photographs of thechildren's hands, identifying the key parts. This makes a great connection between exploring science and art. Remind pupils that Leonardo prodded and pulled at cadavers and made models. He didn't just look.

Older children might consider a detailed painting direct on the back of their hands where they can feel their bones and tendons, if allergic or sensitive to paint, cover the hand in cling film and then paint the key areas.

Label parts of their 'dissected hand' drawing with tendons, bones etc. Refer to the 'Definitions' resource sheet provided.

QUESTIONS TO ASK:

Why did Leonardo make his notes and annotations so detailed?

Can you find the main parts of the hand skeleton?

Resources

RESOURCES

- Inspiration drawings by Leonardo
- Photograph of a hand
- Medical drawing of a hand
- Art straws and masking tape

EQUIPMENT

- Paint, palettes for mixing, brushes, water pots, paper towels. Access to a sink or tracing paper, acetate sheets and markers
- *Leonardo da Vinci: Anatomy* app

RESOURCE IMAGES

Recto: The bones, muscles and tendons of the hand, c.1510–11 (RCIN 919009)

Verso: The bones of the hand, c.1510–11 (RCIN 919009)

More activity ideas

- Encourage pupils to write any questions they still have about their hand's structure. They could then ask you or find the answers in a book or online, e.g. 'what is bone made of?'

FANTASTIC FINISH

Using sketchbooks, pupils can work with a partner, taking turns to pose and create detailed hand studies like Leonardo's *A study of a woman's hands, c.1490 (RCIN 912558)* Talk about the movements he would have made with the charcoal and metal point. Leonardo combined strong outlines with rapid but controlled hatching.

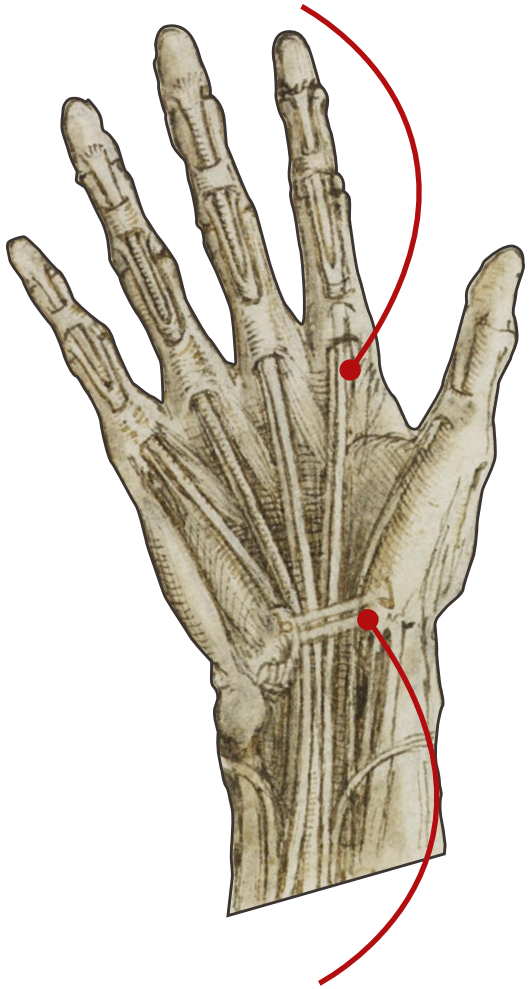
Definitions

Bones

Your body has a skeleton made of strong, hard bones. These bones give your body support, let you move in many ways, protect your internal organs, and more. An adult human body has 206 of them!

Tendons

Tendons are cords made of tough, inelastic tissue attaching your body's muscles to your bones. They are really important as they keep things in your body together.

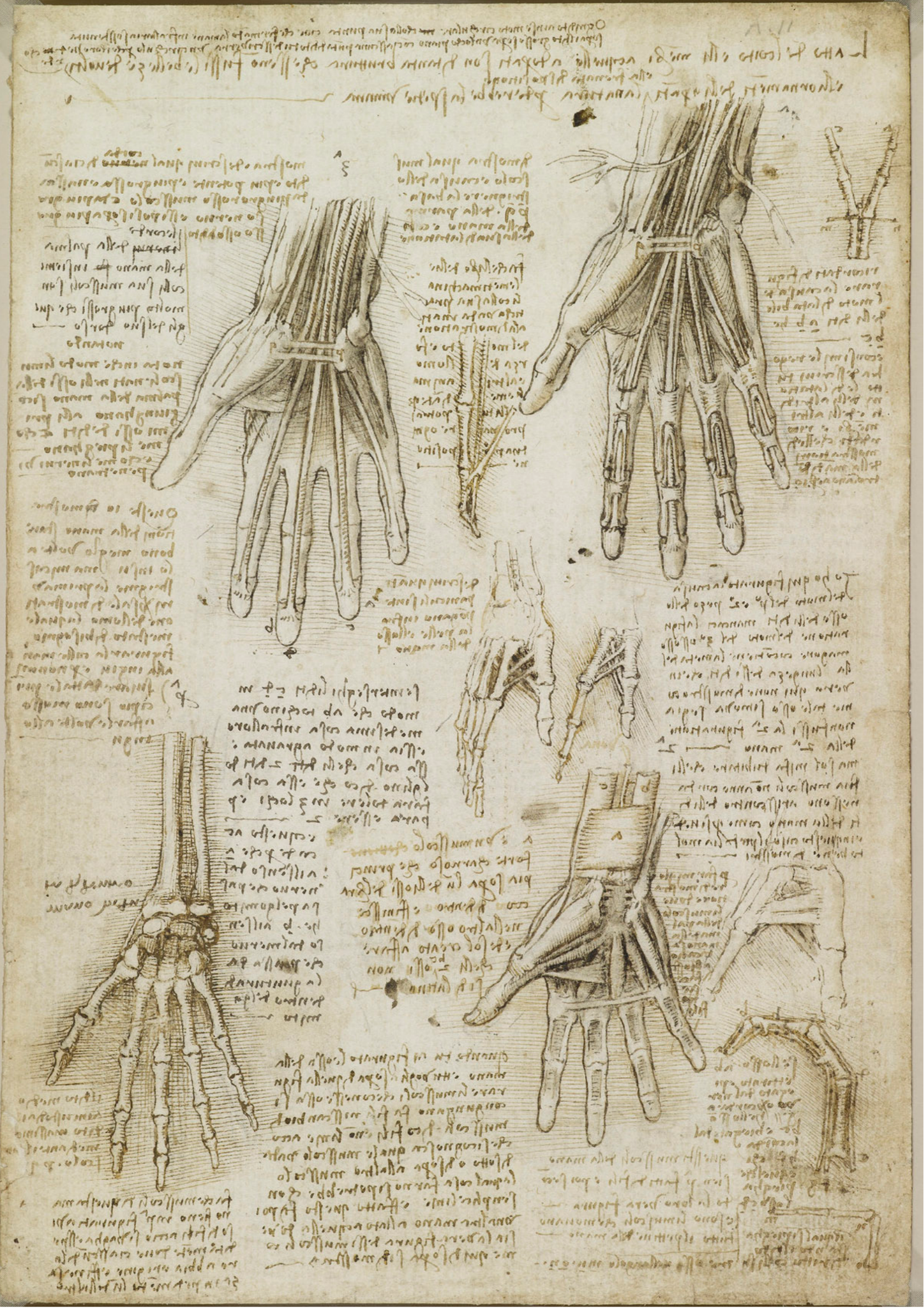


Ligaments

These also help to keep your body together. Ligaments are flexible, elastic cords that hold bones together.

Muscles

You have more than 600 muscles in your body! Some muscles can be controlled such as the ones joined to bones, which contract to make the bones move. Your heart is a muscle that contracts without us even thinking about it, and it pumps blood around your body.



*Verso: The bones of the hand c.*1510–11, (RCIN 919009)

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