

ACTIVITY 02 | PRIMARY



Exploring plants

KS1 or KS2

Art and Design, Science

First or Second level

Expressive Arts, Sciences, Technologies

Exploring plants

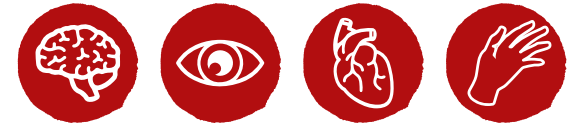
Like mini Leonardos, your pupils will draw plants from life. They will dissect a lily, label its parts and see how it reproduces.

During the Renaissance, many people sought to understand the world around them, and this included plants. Plants were used for both food and medicine, and learning more about how they grew enabled advances in science. In a time when there were no photographs or X-rays, drawings based on life were the best way to learn and share new discoveries and ideas; other contemporaries of Leonardo da Vinci, such as his teacher Andrea del Verrochio, were also exploring plants in this way.

To find out more watch the short interview with Martin Clayton: [‘Why was it important to Leonardo to draw from life’](#).

For example, have a look at Leonardo’s drawing [A star-of-Bethlehem and other plants, c.1506–12 \(RCIN 912424\)](#) and you can see how he successfully shows the effect of gravity on the growth of plants.

Focus image: [Andrea del Verrochio, A lily, c.1475 \(RCIN 912418\)](#) 



IN THIS ACTIVITY PUPILS WILL:

WORK scientifically, drawing from observation and scientific investigation.

UNDERSTAND why realistic drawings were important during the Renaissance.

KNOW why accurate recording is important for scientific understanding.

GROUP or classify plants.

EXPLORE and understand plant parts and processes needed for reproduction.



LEONARDO ON FILM

To find out more about why Leonardo drew from life, your class could watch [this short interview](#) with Martin Clayton.

STEP 01

Classifying the plant

Plants can be classified in a variety of ways, where they are grouped together based on similar characteristics or features, for example:

Plants with seeds (flowering plants and conifers)

Plants without seeds (ferns and mosses)

Look at lilies with your class and ask questions: Is it flowering? Does it have seeds? Spend time observing, encouraging pupils to look in detail at each part of the plant.

STEP 02

Draw to understand

Draw the whole plant and, like Leonardo, use hand-held magnifying glasses to really look closely. You might want to discuss with your class how magnifying glasses work.

Use the poster 'Draw like Leonardo: Top Tips' to help your class achieve realistic Leonardo style drawings from life.

Some pupils might prefer to draw a specific part or section of the plant using a viewfinder.

After drawing the lily, pupils can take apart the plant, one piece at a time.

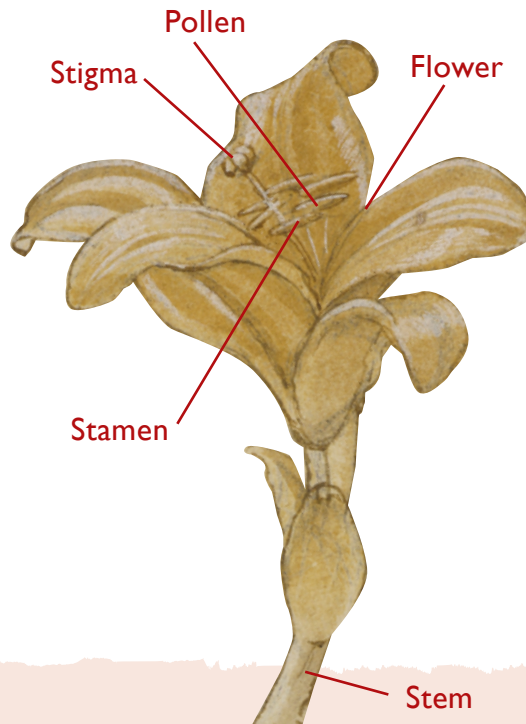
STEP 03

Annotation

Label each part of the lily and annotate the drawing with any interesting features pupils have spotted. Each drawing should include:

- Stem
- Flower
- Pollen
- Ovum (female part)
- Stamen (male parts)
- Stigma
- Roots (if you have them)

Discuss how these different elements work together.



QUESTIONS

After this step, here are some questions for discussion:

Do your pupils want to re-classify their plant after taking it apart?

Why won't your plant live? (It's out of water, it has no nutrients from soil and it has no root to extract both of these)

How might you classify Verrochio's lily? For example, seeds/ no seeds.

Flowering or non-flowering plant?

What is really inside?

Now look at the real thing!



REMEMBER

Leonardo would have revisited his drawings, ideas and jottings. He would have used his drawings to test ideas and visualise future plans.

Resources



FOR DISSECTION

- Lilies – before you use lilies, take the usual precautions of checking allergies. Ensure pupils know not to eat them and wash their hands afterwards
Remember, pollen can stain!
- Magnifying glass
- Scissors and tape
- Craft knife for you
- Printed copy of labelled lily parts
- Martin Clayton interview [Why was it important to Leonardo to draw from life](#)

This session can be adapted across the seasons. The following alternatives could be used: daffodils, poppy head, conker, sycamore seed.

FOR DRAWINGS

- Sketchbooks or sketchbook-making materials (paper, binders, glue)
- ‘Draw like Leonardo Top Tips’ poster
- Viewfinders (optional)
- ‘Leonardo’s backwards writing’ activity sheet and mirrors
- *Leonardo da Vinci: Anatomy* app (optional)

RESOURCE IMAGES

Andrea del Verrochio was Leonardo's teacher.



[A star-of-Bethlehem and other plants, c.1506–12 \(RCIN 912424\)](#)



[Andrea del Verrochio, A lily, c.1475 \(RCIN 912418\)](#)

LEONARDO ON FILM

To find out more about how Royal Collection Trust recreated Leonardo's signature, your class could watch this [short film](#) with Martin Clayton.



FANTASTIC FINISH

Perhaps your pupils would like to sign their drawings backwards in the style of Leonardo. See the separate activity sheet ‘Leonardo’s backwards writing’ for this.





SKETCHBOOKS

Discuss using sketchbooks when working outside. How do we record things today? What was available in Leonardo's time? Compare this to digital cameras and X-rays today.

LEONARDO'S NOTEBOOK FACTS

- Leonardo's notebooks are still important today, we can still learn from them.
- The Codex Leicester is an early sixteenth-century manuscript of Leonardo's notes and sketches about physics. Bill Gates, co-founder of Microsoft, bought it in 1994 for \$30 million.
- Leonardo didn't expect anyone to see his study drawings.



More activity ideas

- Why not consider food chains? Discuss how cutting down plants and trees affects food chains. Undoubtedly, Leonardo would have been interested in sustainable living.
- What links can we make to saving plants today, e.g. RHS seed banks. Make a link to biodiversity and why this is important. Which plants are extinct? How could we preserve those pushed to the edge of extinction and what would be lost if we don't?
- Investigate how water is transported in plants through a celery test: put the end of a celery stick in water mixed with food colouring and leave it overnight. The celery will have drawn up the water in a process called transpiration. We can see this because we have put it in coloured water. The tubes that transport water are called xylem tubes. Leonardo realised that there must have been tubes in plants carrying the water, just like the veins in our bodies.
- Pupils could look at their plant using a digital microscope so all the class can see. They can plant their own lily bulb and – for a longer science experiment – investigate growth, recording changes using a diary of pictures. They could investigate plant requirements by removing one variable at a time, for e.g. keep it in the dark or without water.

Leonardo's backwards writing

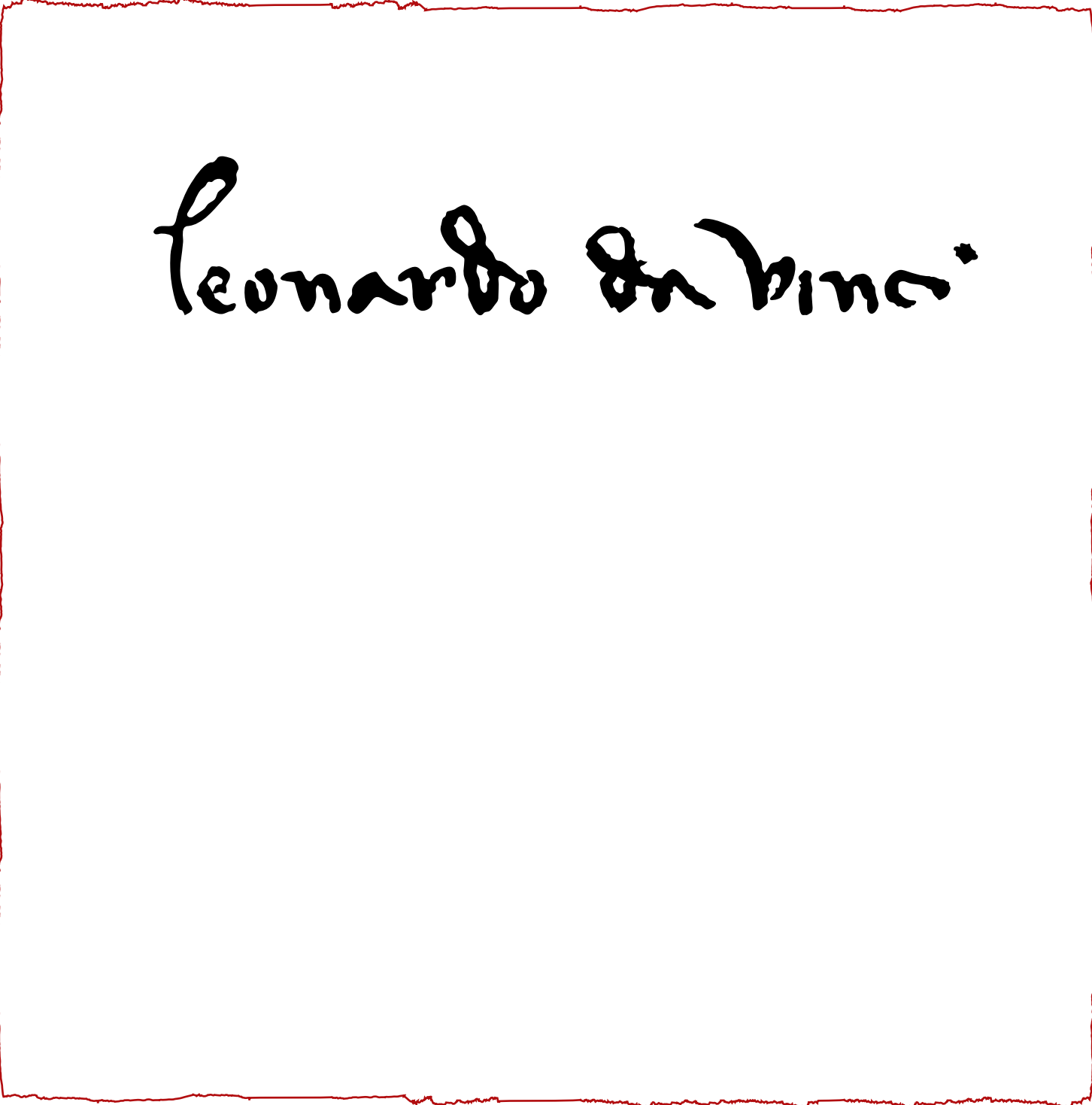
Leonardo was left-handed, and he probably found pulling his quill towards him, rather than pushing against the paper, was easier; it also meant that the ink was less likely to get smudged!

Use this space to practise. First, write your name as usual then try writing your name backwards. See Leonardo's signature opposite to give you an idea. If writing backwards is tricky, try holding a mirror up to your name when written normally to see it back-to-front.

OR

Hold a pencil in each hand. At the same time, write backwards with the usual writing hand while writing forwards with the opposite hand. The action of having one hand mirror the other hand may help the brain coordinate the movements.

If it is still tricky, try just initials rather than a whole name to sign your drawing.



leonardo da vinci



Andrea del Verrochio, *A lily*, c.1475 (RCIN 912418)

