Leonardo da Vinci was an engineer, architect, designer, inventor, scientist, painter and sculptor. While he is best known as an artist — the man who painted the Mona Lisa — he actually spent more time on scientific projects than on painting. As few as 15 paintings are definitely attributed to Leonardo, but there are copious drawings and many notebooks documenting his varied interests.

Leonardo’s notebooks equal the importance of his paintings. They are perhaps the greatest literary legacy any artist has bequeathed to the world. *Leonardo da Vinci: the Codex Leicester — notebook of a genius* allows a rare insight into one of history’s most celebrated minds.

The Codex Leicester is on loan from Bill and Melinda Gates.

Major sponsors | Sponsor | Supporter
---|---|---
Microsoft | News Limited | Corbis

An official event in the Sydney 2000 Olympic Arts Festival.
1. Introduction
2. Leonardo's notebooks
3. Audiovisual introduction
4. Codex Leicester
5. Timeline
6. Leonardo, scientist and engineer
7. Leonardo, artist
8. The Renaissance
9. Codex Interactive Gallery 1
10. Codex Interactive Gallery 2
11. Shop
12. Inspiration points

Please note:
The central area of the exhibition (4) is dedicated to the display of the Codex Leicester manuscript. Information panels are located throughout the exhibitio n (2, 5, 6, 7, 8, 12).

Computer workstations that allow access to the Codex Interactive are located in two areas (9, 10).
Leonardo da Vinci: the Codex Leicester — notebook of a genius provides a strong resource for primary school students in the following areas:

**Years K–6 Science and Technology**
- Information and communication
- Physical phenomena
- Earth and its surroundings
- The process of investigation that people use in order to develop reliable understandings of the natural and made environments
- The process of designing and making that people use in order to satisfy their wants and needs

**Secondary links**
Leonardo da Vinci: the Codex Leicester — notebook of a genius provides a strong resource for secondary school students in the areas of science, earth and environmental science, history, physics and design and technology.

**Years 7–10 Science**
- The history of science
- The nature and practice of science
- Models, theories and laws, structures and systems related to the physical world, matter, the living world, earth and space

**Years 7–10 Design and technology**
- A range of technologies and their uses
- The role of technology in society
- The impact of technology on society
- The impact of technology on the environment

**Years 11–12 Earth and environmental science**
- The history of earth and environmental science
- The nature and practice of earth and environmental science
- Models to explain structure and processes of change affecting the earth and its environments
- The resources of the earth, particularly air, soil, water, minerals, their distribution and their role in supporting living systems

**Years 7–10 History**
- Time and chronology including: different perceptions of time; conventions used to describe historical periods and the passing of time; chronological frameworks of people, events and historical forces
- The nature of past societies and periods and their contributions to our world cultural heritage

**Years 11–12 Physics**
- The history of physics
- The nature and practice of physics
- Applications and uses of physics
- The implications of physics for society and the environment
EXTENDING YOUR VISIT

Your visit to *Leonardo da Vinci: the Codex Leicester — notebook of a genius* can be extended and enhanced through visits to Sydney Observatory, other Powerhouse exhibitions, or participation in one of our education programs. Our bookings staff are happy to discuss which sections of the museum will best link to your subject area.

**Codex Interactive in the Information Technology Centre**
The museum’s Information Technology Centre (ITC) offers 30-minute sessions for your students to use the Codex Interactive; an interactive computer program featured in the exhibition that reproduces each page of the Codex Leicester. The sessions will comprise a short tutorial led by Powerhouse staff, and free ‘browsing’ time, which can be structured through the use of an activity sheet designed to stretch students’ research skills.

Numbers are limited. ITC sessions must be booked with your exhibition visit.

**Inspiration points**
**Leonardo da Vinci and the Powerhouse Museum**
To complement the *Codex Leicester* exhibition you will find a series of inspiration points located throughout the museum that link Leonardo’s visionary ideas from 500 years ago with developments in design and technology. The ideals that guide the Powerhouse Museum — the meeting of art and science — are embodied in Leonardo and his work.

**Sydney Observatory part of the Powerhouse Museum**
Sydney Observatory is a museum of science and astronomy, and a public observatory. It is a valuable educational resource for both students and teachers. Some of the topics which can be studied in a special educational visit, and are relevant to the *Codex Leicester* exhibition are: the moon and its phases; the solar system; time and time measurement; science, technology and industry; telescopes.

All group visits must be booked. For information and bookings phone (02) 9217 0485.
Protecting the Codex Leicester

LOW LIGHT LEVELS

The pages of the Codex Leicester are almost 500 years old. To safeguard the sensitive sheets of the manuscript, the pages are shown in special cases that protect against excess humidity and light.

As you enter the exhibition space you will notice general light levels are low and not all pages of the codex are illuminated at the same time.

Please be patient and help us to safeguard Leonardo's delicate writings for future generations.

Reading the Codex Leicester

THE CODEX INTERACTIVE GALLERY

Once you have appreciated Leonardo's original manuscript, please use the Codex Interactive Gallery to further explore the Codex Leicester.

The Codex Interactive Gallery, located at the rear and left hand side of the exhibition, is an interactive program that reproduces each sheet of the Codex Leicester, giving your students the opportunity to examine every page in detail.

This unique translation tool guides you through the intricacies of Leonardo da Vinci's manuscript. It allows the viewer to reverse Leonardo's characteristic mirror writing and translates the Italian into contemporary English.

Please refer to page 4 for information on Codex Interactive sessions for your students in the Information Technology Centre.

Detail from sheet 3B, folio 3V.
The Codex Leicester

LEONARDO'S FASCINATION WITH WATER

Leonardo compiled the Codex Leicester in Milan between 1506 and 1510. He wrote in sepia ink on 18 double-sided sheets of loose-leaf, linen paper, each one folded to make a total of 72 pages. In several places Leonardo addresses ‘the reader’.

Although he covers a variety of topics, Leonardo’s fascination with the flow of water is the primary subject of the Codex Leicester. Leonardo had to learn the essential laws of water to succeed as a hydraulic engineer. In the codex he makes plans for water-powered machinery, proposes draining the swamps around Milan, designs a system of canals and locks and makes studies of the rippling motion, eddies and whirlpools of watercourses.

Leonardo’s fertile imagination often skips to other subjects and on one page he moves from a discussion of dams to an exploration of light from the moon. He also examines why the sky is blue and how fossil seashells came to be on mountains.

Why is it called the Codex Leicester?

THE HISTORY OF LEONARDO’S MANUSCRIPT

The Codex Leicester was part of the bequest Leonardo made in his will to his faithful pupil Francesco Melzi. It was later known to belong to the Milanese sculptor Guglielmo della Porta before painter Giuseppe Ghezzi acquired it in 1690.

In 1717 Ghezzi sold the manuscript to Englishman Thomas Coke, later Earl of Leicester. The family, whose name the codex carries, retained the manuscript for more than two centuries. In 1980 the codex was sold at auction to American businessman and collector Armand Hammer, who renamed it the Codex Hammer.

The codex was auctioned a second time after Hammer’s death in 1994 and was purchased by Microsoft chairman Bill Gates and his wife Melinda. It was the Gates who restored the name Codex Leicester to the manuscript.

The word ‘codex’ refers to a manuscript in book form. The individual sheets were bound together in the 17th century but are now unbound as they were when Leonardo compiled them.
Leonardo and the Renaissance

A WORLD OF CHANGE

About 50 years before Leonardo's birth in 1452, a great change began in Italian society. It came to be known as the Renaissance or 'rebirth', because of the renewed interest in ancient Greek and Roman knowledge.

The Renaissance marked an extraordinary flowering of ideas that affected painting, sculpture, architecture, and the earliest stirrings of science.

Leonardo da Vinci is acknowledged as one of the greatest painters of all time, but in the true spirit of the Renaissance, he was also an accomplished architect, engineer, inventor and, above all, an observer of nature.

His notebooks were the repositories of his ideas and he used his great drafting skills to illustrate his research and describe his theories and inventions.

Today Leonardo is celebrated for his forward-thinking technology. He is credited with designs for flying machines (including helicopters) tanks, submarines and even a mechanical man.

Throughout his life, Leonardo's buoyant faith in finding technical solutions to human problems was tempered by his respect for natural phenomena. 'Nature is my only master,' he said.

Leonardo's lifetime

A TIMELINE

1452 — Born 15 April in Vinci, Tuscany.
1469 — Begins apprenticeship in artist Andrea del Verrocchio's workshop in Florence.
1481–2 — Works as painter and engineer to Duke Ludovico Sforza in Milan.
1490 — After studying the flight of birds, designs an aircraft with wings
1495 — Paints the Last supper. Studies with mathematician Luca Pacioli.
1499 — Returns to Florence after the Duke's downfall.
1502 — Works as military engineer to Cesare Borgia, Captain-General of the papal armies.
1503 — Paints the Mona Lisa in Florence. Carries out dissections and anatomical studies.
1506 — Returns to Milan to work for the French governor of the city.
1506–10 — Compiles the notes that will become the Codex Leicester.
1510–11 — Conducts research with anatomist Marc' Antonio della Torre.
1513 — Leaves Milan for Florence then goes to Rome.
1516–17 — Travels to France as 'First painter and engineer to the King of France'.
1519 — Dies 2 May in Cloux and is buried at Amboise, France.
CLASSROOM ACTIVITIES

The following are suggested classroom activities for your students pre- or post-visit.

The Renaissance
Leonardo is regarded as the definitive Renaissance figure. His relentless curiosity and urge to understand physical causes and effects in nature were representative of the spirit of inquiry, which dominated the period.

1. Investigate the Renaissance in history. What were some of the important changes in the way people thought about the world during this time?

2. Imagine living in Italy in the 1400–1500s. What are some of the differences between how people lived then and our lives now? Think about travel, food, entertainment and clothing.

3. Who were some of the people Leonardo knew and worked with? How did they affect his life and his work?

The moon
The Codex Leicester contains Leonardo's major contribution to the study of astronomy. In the Codex Leicester, Leonardo reveals his theories about the moon and light.

4. Make your own observations about the moon over several nights. Does it always rise at the same time and in the same place? Does the bright part get larger or smaller over a period of time? Draw and write notes of what you see. Try developing your own theory about the changes you notice.

5. Draw a map of the area in which you live. Make sure you include major roads, hills, waterways and landmarks.

6. There are lots of different ways to collect water. Try digging a small hole in the ground, and put a plastic cup in the bottom of the hole. Now place a piece of cling-wrap over the hole, weighing it down with small rocks around the edge. Last, put a small pebble in the center of the cling-wrap so that it slopes down slightly in the middle. Check your water-catcher after a few days to see how much water you have collected. Where do you think this water comes from? What are some other ways to collect water?

7. Do some research on Sydney’s water supply. Where does our drinking water come from? Where does the water go after we use it in our homes? What other interesting things can you find out?

Mirror writing
The Codex Leicester is written in Leonardo’s distinctive mirror writing. Leonardo may have found it easier to write from right to left because he was left-handed and did not want to smudge newly written ink or he may have wanted to make it difficult for others to read his ideas. The exact reason is not known.

8. Try to write a letter to a friend in backwards writing. What tools do you think could help you to do this? Is it easier for left-handed or right-handed people to write backwards?

The body of the earth
Water is the main focus of Leonardo’s inquiries in the Codex Leicester. Leonardo discusses his theories and observations relating to the flow of water on the earth, the measurement and uses of water, and the presence of shells and fossils on mountains.
TEACHER RESOURCES

Books


Websites
- http://www.mos.org/leonardo
  The Boston Museum of Science’s *Leonardo da Vinci: Scientist, Inventor, Artist*

  Exhibit at the History of Science Museum, Florence: *Renaissance Engineers from Brunelleschi to Leonardo da Vinci*

- http://www.leonardo.net/museum/main.html
  The Leonardo da Vinci Museum

- http://208.4.223.8/lecagot/leonardo.html
  Leonardo da Vinci by Le Cagot

- http://banzai.msi.umn.edu/~reudi/leonardo.html
  Leonardo da Vinci drawings

  Leonardo the anatomist

- http://metalab.unc.edu/wm/paint/auth/vinci/
  Web museum, Paris: Leonardo

- http://www.odranoe.de/indexeng.htm
  Museum der Dinge – Leonardo da Vinci’s Codex Leicester

  The Seattle Art Museum

Please note
These websites were available and suitable at the time of publication. We advise teachers to check sites before recommending them to students.
GLOSSARY

**Apprenticeship** — during the Italian Renaissance, this was the term used to describe the training of a person under the guidance of a master artist.

**Codex** — Latin word for a bound notebook or manuscript volume.

**Hydraulic** — operated by or employing use of water.

**Manuscript** — a book or document written by the author’s hand.

**Renaissance** — the spirit or time of the great revival of art, letters, and learning in Europe during the 1400–1500s, marking the transition from the medieval to the modern world.

---

**Exhibition book**

*Leonardo da Vinci: the Codex Leicester — notebook of a genius*

Published by Powerhouse Publishing, $32.95 (GST included), paperback, 168 pp, with over 80 colour illustrations.

Inquiries: (02) 9217 0129.

---

FOR FURTHER INFORMATION

For more information on the *Leonardo da Vinci: the Codex Leicester — notebook of a genius* exhibition, visit the Powerhouse Museum's website http://www.phm.gov.au

For more information about the museum or your booking, contact Education and Visitor Services at the Powerhouse Museum:

telephone (02) 9217 0222, (02) 9217 0366, fax (02) 9217 0441, email edserv@phm.gov.au

---

The Powerhouse Museum, part of the Museum of Applied Arts and Sciences, also incorporating Sydney Observatory, is a NSW government cultural institution. © 2000 Trustees of the Museum of Applied Arts and Sciences.

Codex Leicester images courtesy of Seth Joel/© Corbis.

This publication is copyright. Apart from fair dealing for the purposes of research, study, criticism or review, or as otherwise permitted under the Copyright Act, no part may be reproduced by any process without written permission.