



Bell Work

You are a student from Holland, studying law at the university in Bologna, Italy. Life in Renaissance Italy is so exciting! You've met artists & writers & learned so much about art & literature. You can hardly wait to tell people at home about everything you've learned. But now a lawyer in Bologna has offered you a chance to stay & work in Italy.

Will you STAY in Italy or return to Holland?

Quiz

- Take out your offices for the vocabulary quiz.

Objective

- I can outline the advances made in...
 - Literature
 - the arts
 - science
 - mathematics
 - cartography
 - engineering
 - the understanding of human anatomy
- 7.48 Outline the advances made in literature, the arts, science, mathematics, cartography, engineering, and the understanding of human anatomy and astronomy, including Leonardo da Vinci (Last Supper, Mona Lisa), Michelangelo (Sistine Chapel, The David), Johann Gutenberg, and William Shakespeare. (C, G, H)

ESSENTIAL QUESTION

In what areas did Renaissance figures make notable achievements?

Who were the Renaissance figures who made notable achievement?

Science Advancement

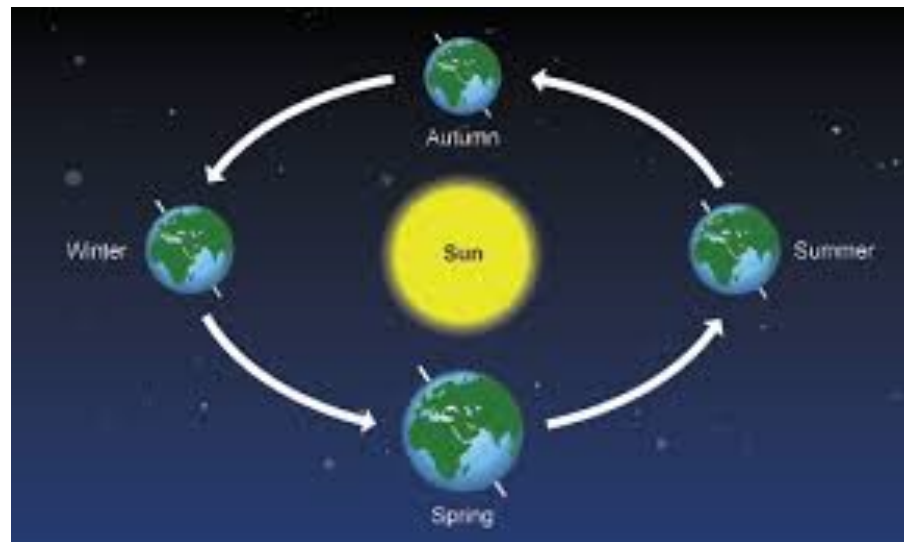
- Many of the texts rediscovered in the 1300s dealt with science.
- For the first time in centuries, Europeans could read works by ancient scientists.
- After reading these works, Renaissance scholars went on to make their own scientific advances.



Science Advancement

Astronomy

- Scientists wanted to know more about the sky and what was in it.
- They studied astronomy and learned that the earth moves around the sun.



Mathematic Advancement

- Some scholars thought mathematics could help them understand the universe. They studied ancient math texts and built upon the ideas in them.
- In the process, they created symbols we still use in math today. For example, they created symbols for the square root and for positive (+) and negative (–) numbers.
- Do we still use these symbols today? Predict how math would be different if we did not have them.

Math Advancement

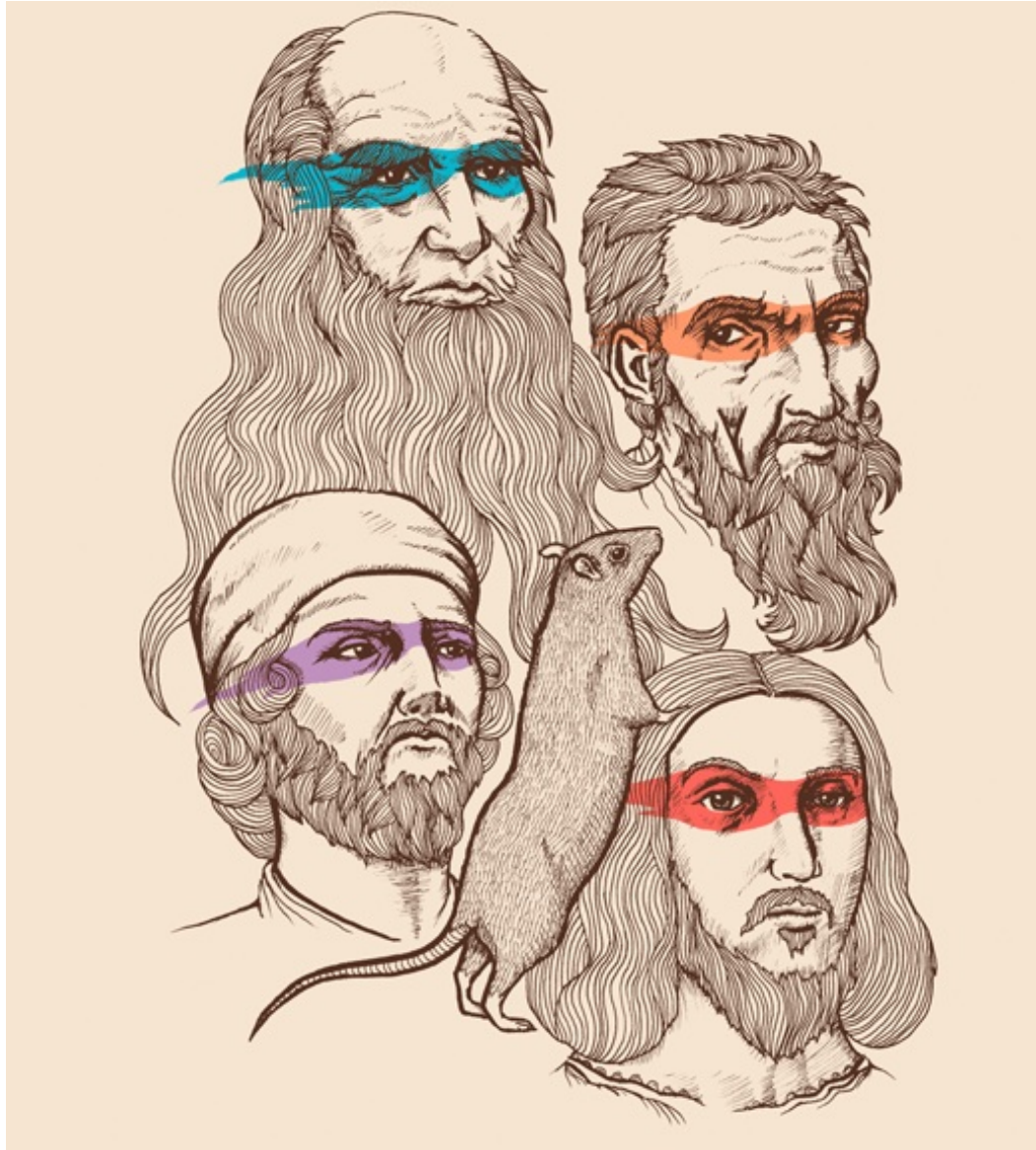
- Advances in math led to advances in other fields of science.
- For example, engineers and architects used new mathematical formulas to strengthen buildings.
- One Renaissance architect who used these new ideas was Filippo Brunelleschi (broo-nayl-LAYS-kee). He designed a huge dome for a cathedral in Florence. But Brunelleschi ran into a problem. The dome that he wanted to build was so big that it would be too heavy for the cathedral's walls to support. To solve the problem, he built the dome out of two thin, light layers instead of one thick, heavy one.



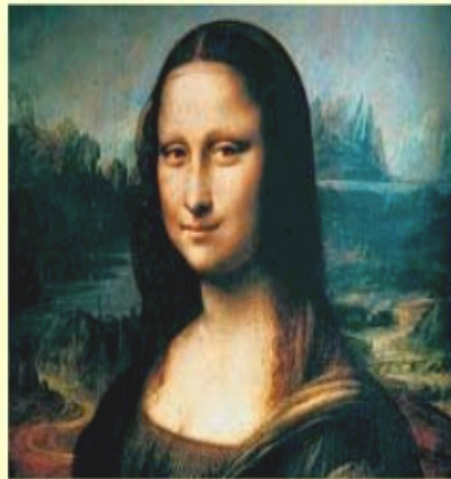
Astronomy

- Other Renaissance scientists wanted to know more about the sky and what was in it. They studied astronomy to learn about the sun, stars, and planets. In the Middle Ages, scientists had thought that the sun and stars revolved around the earth. They thought that the earth was the center of the universe.
- Renaissance scientists learned that the earth moves around the sun. Later astronomers built on this discovery to lay the foundations for modern astronomy.
- **Why was the development of astronomy important during this time period?**

Art Advancement



The Genius of Leonardo da Vinci



As you view the video, complete the graphic organizer to learn more the life and accomplishment of Leonardo da Vinci.

Leonardo was born in Vinci, a small town near Florence. He showed artistic talent at a young age. But no one could know that Leonardo would become one of the great geniuses of history.

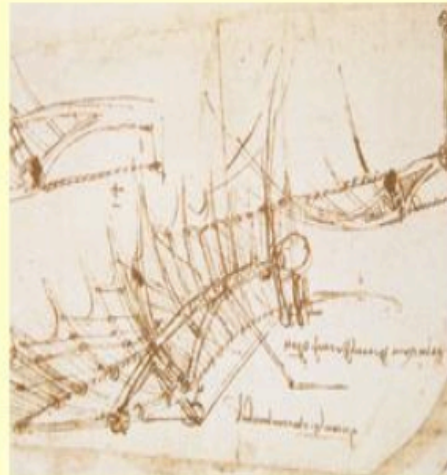
Art
Leonardo was one of the great artists of the Renaissance. His *Mona Lisa* is one of the most famous paintings in the world.

Anatomy Studies
This page from one of Leonardo's notebooks shows how he studied the human body.

CAREER SUMMARY

Fill in details about Leonardo's work and accomplishments.

| WORKS OF ART  | INVENTIONS  |
|--|---|
| <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> |
| SCIENTIFIC STUDIES  | IMPORTANCE IN HISTORY  |
| <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> |



Inventions

A notebook page shows Leonardo's sketch of a wing. He sketched many ideas for machines that would let people fly. Above is a model of one of his ideas.

Leonardo Da Vinci

- The true genius of the Renaissance was Leonardo da Vinci.
 - He was an expert painter, sculptor, architect, inventor, and engineer. He was even a town planner and mapmaker.
- Both nature and technology fascinated Leonardo.
- Detailed drawings of plants, animals, and machines fill his sketchbooks.
- To make his art more real, Leonardo studied anatomy, or the structure of human bodies. He dissected corpses to see how bones and muscles worked.
- Yet Leonardo's paintings also show human emotions. For example, people who see his Mona Lisa can't help wondering what made the lady smile and the Last Supper.
 - <https://www.youtube.com/watch?v=i-6M8fecrh0>

Michelangelo Buonarroti

- Another great Italian artist was Michelangelo (mee-kay-LAHN-jay-loh).
- Michelangelo designed buildings, wrote poetry, carved sculptures, and painted magnificent pictures.
- Most famous work is a painting that covers the ceiling of the Sistine Chapel in the Vatican.
- The muscular human figures in this immense painting remind the viewer of Greek or Roman statues.

Pictures of the Sistine Chapel.



How does Michelangelo artwork reflects humanism? Explain using details from the pictures.

Advancement in Education

- During the Renaissance, students continued to study religious subjects, but they learned about the humanities as well.
- History was especially important.
- Read the following quote and discuss with your group what it means.
- “O inglorious age! that scorns antiquity, its mother, to whom it owes every noble art... What can be said in defense of men of education who ought not to be ignorant of antiquity [ancient times] and yet are plunged in...darkness and delusion?”
—Francesco Petrarch, from a 1366 letter to Boccaccio

New Universities and The Northern Renaissance

- Read *New Universities* and *The Northern Renaissance*.
- Answer the following questions in your notes.
 1. Who could attend universities?
 2. How did universities help spread Renaissance ideas?
 3. What is Christian Humanism?
 4. Why was Desiderius Erasmus significant?
 5. Who was Albrecht Durer?

Advancement in Literature

- William Shakespeare
 - Many people consider William Shakespeare the greatest playwright of all time.
 - He invented common phrases such as *fair play* and common words such as *lonely*.
 - In fact, Shakespeare is probably responsible for more than 2,000 English words.



Advancement in Literature

- Although he also wrote poems, Shakespeare is most famous for his plays.
- He wrote more than 30 comedies, tragedies, and histories.
- London audiences of the late 1500s and early 1600s packed the theatre to see his works performed.
- <https://www.brainpop.com/english/freemovies/williamshakespeare/>

Literature Beyond Italy

- Read *Literature Beyond Italy* on p. 569.
- Who else is famous for literature according to the text?

Closure

- Complete the section review on p. 568.