NICOLAUS COPERNICUS

A RENAISSANCE MAN WHO STARTED A SCIENTIFIC REVOLUTION

By Cynthia Stokes Brown, adapted by Newsela
In the middle of the 16th century a Catholic, Polish astronomer, Nicolaus Copernicus, synthesized observational data to formulate a comprehensive, Sun-centered cosmology, launching modern astronomy and setting off a scientific revolution.
Have you ever heard the expression “Renaissance man?” This term describes a person who is very good at many different things.

Nicolaus Copernicus was not only an astronomy genius. He was also a mathematician, a church judge, a doctor, a translator, an artist, an official in the Catholic Church, a governor, a diplomat, and an economist. He spoke German, Polish, and Latin, and understood Greek and Italian.

Family and studies

Copernicus was born February 19, 1473 to wealthy parents who both died when he was young. He and his siblings were adopted by his rich and powerful uncle.

He studied mathematics and astronomy at the University of Krakow from 1492 to 1496. While there he changed his original last name, Koppernigk, to its Latin version. Latin was the common language of scholars at the time.

Copernicus also studied law and medicine in Italy. The journey from Poland to Italy took two months by foot and horseback. But the universities in Italy were some of the best in the world at the time.

As a student, Copernicus began to question what he was taught. His professors taught him Aristotle’s and Ptolemy’s views: the Earth was at the center of the Universe. It did not move.

Copernicus began to develop his theory that the Sun was at the center of the universe while he was a student.

Life at the cathedral

Copernicus became canon of Frombork cathedral in 1497. He had many duties as canon. These included mapmaking, collecting taxes, serving as a secretary, and practicing medicine.

He continued his study of the skies. He made astronomical observations from his tower apartment.

Copernicus didn’t have a telescope, because the telescope hadn’t been invented yet. Instead, he looked through a simple metal tube. He also had a device that looked like two wooden yardsticks joined together. He used it to measure the angles of stars and planets in the sky.

Based on his observations, he wrote a short report in which he explained his heliocentric theory. Copernicus confidently said that the Earth both turned on its axis and orbited around the Sun.

A heliocentric theory

It took Copernicus 16 years to write his masterwork on astronomy. Even then, he didn’t want to publish it. He was afraid of the huge controversy it would create. He also wanted time for more research.

Finally, a mathematician friend convinced Copernicus to publish the book. He was 68.

The book was called On the Revolutions of the Celestial Spheres. In it, Copernicus described the shape of the Universe. He provided a diagram to help readers. In the diagram, we see the Sun at the center. Orbiting around the Sun are the planets, including Earth. On the outside are the fixed stars.
Copernicus’s theory can be summarized like this:

The center of the Earth is not the center of the Universe, only of Earth’s gravity and the moon. The Sun doesn’t move, and all other spheres revolve around the Sun. Earth has more than one motion. It turns on its axis and moves in a spherical orbit around the Sun. The stars appear to move, but really it is the Earth that is moving.

Death and legacy

Legend says that Copernicus was on his deathbed when his great work was published. He woke from a coma to see and appreciate his accomplishment. He died peacefully on May 24, 1543. He didn’t live to hear any praise or criticism of his ideas.

The Catholic Church banned Copernicus’s book more than 70 years later. It also banned any other book that agreed with Copernicus’s heliocentric argument — Galileo Galilei’s for example.

Copernicus’s heliocentric model wasn’t widely accepted for hundreds of years.

Isaac Newton’s laws of gravity helped to confirm Copernicus’s theories. The laws explained why planets would orbit the Sun and not the Earth. Because the Sun is much larger, the pull of its gravity is stronger.

It appears that the Sun rises each morning and sets every night. But really, it is the Earth, not the Sun, that is moving. Copernicus asked people to give up thinking that they lived in the center of the Universe.

For him, the idea of the Sun shining on all the planets as they rotated around it had great beauty and simplicity.
During the time of Copernicus

- 1470: Born on February 19 in Torun, Poland (then Thorn, West Prussia)
- 1480: The War of the Roses ends in England
- 1484: Copernicus’s father dies
- 1491-1503: Copernicus studies at various universities in Poland and Italy
- 1492: Columbus sails to the Americas
- 1497: Begins studying at various universities in Poland and Italy
- 1500: Moves to Frauenburg (now Frombork)
- 1503: Leonardo da Vinci begins painting the Mona Lisa
- 1514: The Teutonic Knights raze Frombork; Copernicus and the other canons work to rebuild the town
- 1517: Martin Luther begins the Protestant Reformation in Germany
- 1520: Order of Teutonic Knights dissolves
Sources


