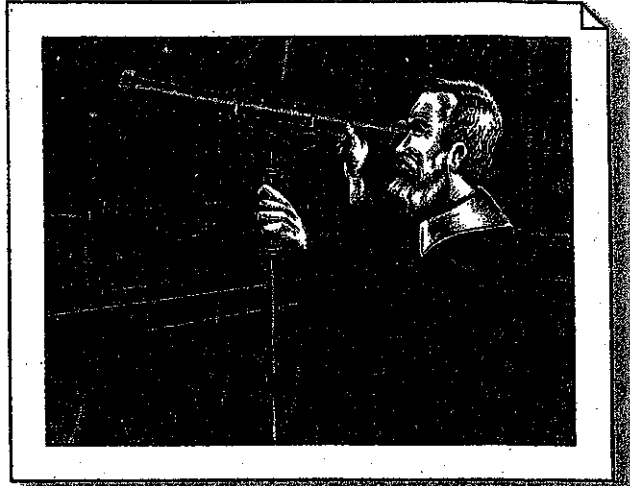




# The Scientific Revolution

Until the mid-1500s, scientists agreed that the Earth was the unmoving center of the universe. The ancient Greek astronomer Ptolemy had come up with this theory in the second century A.D. His theory was accepted because it seemed like common sense and went along with the Church's views. The Church taught that God put Earth in the middle of the universe. However, scholars made discoveries in the 1500s and 1600s that changed the way people thought about science. This time in history is called the Scientific Revolution.



In 1543, Nicolaus Copernicus published a book that said Ptolemy's theory was wrong. Copernicus said that the Sun was the center of the universe, not the Earth. He also wrote that Earth was just one of several planets that revolved around the Sun. Most scholars did not believe Copernicus's theory. At that time, all scientific knowledge was based on ancient theories like Ptolemy's. If Ptolemy's theory was wrong, all scientific knowledge could be wrong!

Over the years, scientists looked for evidence of Copernicus's theory. In 1609, an Italian scientist named Galileo built a powerful telescope. It had a special lens that let him see things that had never been seen before. He saw mountains on the Moon, dark spots on the Sun, and four moons around Jupiter. The four moons revolved around Jupiter just like Copernicus said the Earth revolved around the Sun.

Galileo was not praised for his amazing discoveries. Instead, the Church was angry. Galileo's ideas clashed with the Church's belief that the heavens did not move. The Church did not want people to question its teachings. In 1633, Galileo was put on trial. Church officials told him to take back what he said or he would be put to death. Galileo agreed to say that he was wrong and that the Earth was the center of the universe. Legend says that Galileo muttered, "And yet Earth does move!" as he walked out of the court.

Scientists like Copernicus and Galileo started a new way of scientific thinking. Following their example, scholars like Sir Isaac Newton, Sir Francis Bacon, and René Descartes used a logical approach to solving problems. By the early 1600s, scientists used a process called the scientific method to study the natural world. Scientists collected and measured data and came up with a hypothesis, or possible explanation for the data. Then, they tested the hypothesis by observing or experimenting. Developed over many years, this step-by-step process is still used today.



## The Race for Riches

Inspired during the Renaissance, European inventors built ships that could travel long distances. The desire to grow rich and spread Christianity started an age of European exploration in the 1400s.

Europeans loved the spices and other luxury goods that came from Asia. The goods were brought along trade routes through the Middle East and Italy.

Arab and Italian merchants charged high prices for the imported goods.

European merchants and the monarchs

of England, Spain, Portugal, and France wanted a share of these profits. They desired a sea route to Asia so that they could buy goods directly and save money.

Portugal's Vasco da Gama made a successful 27,000-mile voyage around the tip of Africa to India in 1497. It took ten months, and many sailors died on the trip. But the survivors sold their cargo of spices at a 3,000-percent profit! Portugal built a trading empire throughout the Indian Ocean and took control of the spice trade. Portuguese merchants brought goods from Asia at lower prices than Arab and Italian traders had charged.

Other nations wanted to build their own trading empires in Asia. The Dutch established trading headquarters on the island of Java. By 1700, they controlled much of Indonesia. The English and French started trading posts in India. Spain claimed the Philippines.

In the competitive time of exploration, Christopher Columbus decided to find an alternate trade route to Asia. Like most educated people, he knew the Earth was round. In 1492, Columbus sailed west across the Atlantic. He thought he could sail around the world and get to Asia in a new way. Columbus was unaware of the size of the Earth. He did not know entire continents stood between him and Asia.

When Columbus landed on an island in the Caribbean Sea, he thought he was in Asia. He claimed the islands for Spain. The Spanish sent Columbus back to the Caribbean to turn the islands into colonies, or lands controlled by another nation.

Europe's leaders eventually realized that Columbus had traveled to continents Europeans had never been to before. Spain and Columbus started a process of colonization that would reach nearly every part of the Americas. Over the next 200 years, European explorers traveled to the Americas. The French, English, Dutch, and Portuguese also sailed across the Atlantic in search of unclaimed lands.

