Galileo vs. the Catholic Church
(Adapted from Discovery Education Textbook)

The Conflict

In 1616, the Roman Catholic Church investigated Galileo. In a trial, the Catholic Church ordered Galileo to stop discussing ideas that conflicted with the teachings of the Church. Ideas that conflict with religious teachings are named heresy. Heresy was against the law and punishable by imprisonment or death. Religious leaders believed that heresy was evil. Galileo was ordered either to stop supporting a heretical theory or to be put in jail. What was Galileo saying that was so dangerous? What led to this trial?

Galileo Takes on Aristotle

The Greek philosopher Aristotle lived almost 2,000 years before Galileo’s time, but people still believed his ideas, including the Catholic Church. One of Aristotle’s accepted beliefs was that there were two kinds of matter, celestial and terrestrial. Celestial means “of the heavens,” and terrestrial means “of the earth.” This would mean that planets, stars, and moons—the celestial bodies—were different from Earth, the terrestrial body. These two kinds of matter each had their own particular kind of motion. This belief in different kinds of matter led over time to the belief that Earth is the center of the universe and that all celestial bodies revolve around Earth.

The view that Earth was the center of the universe was important to the Catholic Church because they believed that Jesus, the son of God, was human and lived on Earth. Such an important person could only live in the most important place—the center of the universe. It is important to note that these religious leaders did not know that the universe is made up of billions of galaxies. They thought that the solar system we live in was the whole universe. So when they referred to the universe, they really meant only our solar system.

Galileo did not agree that our universe is geocentric, or that everything revolves around Earth. In 1609, Galileo began working on his own version of a very recent invention, the telescope. By 1610, he had not only developed his own telescope but had published a book about his observations using it. In Starry Messenger, he describes mountains on the moon as being like European mountains. He also notes his discovery that Jupiter has four moons revolving around it, just as Earth has one moon. In other words, he found that Earth is not different from other planets. Another book in 1613 brought him closer to his big discovery. First, he observed sun spots, which appeared to move. Galileo realized that the sun must rotate, which would explain the apparent movement of the spots. Second, he observed that Venus rotates around the sun.
Was the universe heliocentric, meaning that it **revolved** around the sun? If the heliocentric theory was true, it would mean that everything **revolves** around the sun, not Earth. It also would mean that Earth moves, too. If so, this would be a **tremendous** change in the way people view the world. Nicolaus Copernicus first proposed this idea in 1543. Copernicus’s book was not very popular, and the Catholic Church was not very alarmed by this book. But Galileo believed he had made progress in proving that the theory was true. In 1611 he presented his **arguments** to Pope Paul V, who treated him respectfully. With this encouragement, Galileo was more convinced that Earth **revolves** around the sun. This led to his trial in 1616. Galileo obeyed the church order to end all discussion on the matter. But after 16 years, he published a book that the Catholic Church could not accept at the time.

**The Conflict Deepens**

Galileo’s 1632 book not only supported the Copernican view that Earth revolved around the sun, it also seemed to make fun of the Catholic Church. The dialogue took place between three characters. Salviati argued the Copernican view and represented Galileo. Sagredo was intelligent, yet without specialized knowledge to give an opinion. Simplicio, who represented the Church, said the Aristotelian view that the sun orbits Earth. Simplicio was characterized as not very intelligent. Because he represented the Church’s view and teachings, showing him as the loser in the debate offended the Church. There was still another offense. Galileo wrote this book in Italian instead of Latin, which made it available to everyone. The Church saw this as case of disobedience and ordered him to travel to Rome.

By now Galileo was an old man and in poor health. On June 22, 1633, Galileo listened to the judges announcing the verdict. He was convicted of heresy. To avoid being tortured, he **recanted**, or took back his claim that Earth orbits the sun. There is a famous legend about what happened next; it is said that as he got up slowly from his kneeling position, Galileo whispered, “*E pur si muove.*” In English, this mean, “And yet, it moves.”

Despite recanting, Galileo was given a life sentence of house arrest, and his books were declared illegal. Yet he continued working, questioning, and discovering from his home. He secretly published another book on physics that contained some of his most important ideas yet. He died on January 8, 1642. In 1758, the Catholic Church formally decided that saying the Earth revolves around the sun was not heretical.

**Church of Santa Croce in Florence.** The floor contains many tombstones, and impressive monuments around the sides celebrate important Renaissance figures such as Michelangelo, Dante, and Galileo.