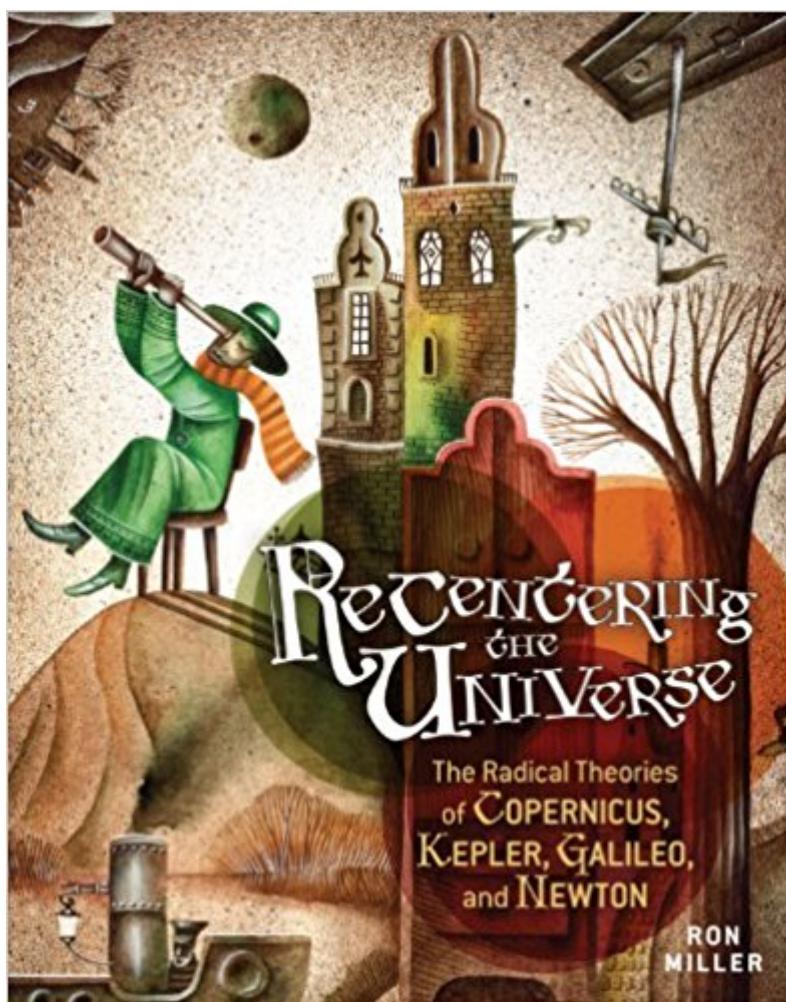


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# Recentering The Universe: The Radical Theories Of Copernicus, Kepler, Galileo, And Newton



## Synopsis

"In the sixth century B.C.E., the Greek philosopher Anaximander theorized that Earth was at the center of the cosmos. That idea became ingrained in scientific thinking and Christian religious beliefs for more than one thousand years. Defiance of church doctrine could mean death, so no one dared dispute this long-accepted idea. No one except a handful of courageous scientists. In the 1500s and 1600s, men like Nicolaus Copernicus, Johann Kepler, Galileo Galilei, and Isaac Newton began to ask questions. What if Earth actually orbited the sun, instead of the other way around? What if the universe was much bigger than anyone imagined? These scientists risked their reputations even their lives to challenge the very heart of Catholic dogma and scientific tradition. Yet, in less than 200 years, their radical thinking overturned theories that had lasted more than a millennium. Join these bold thinkers on the journey of discovery that forever changed our understanding of the cosmos."

## Book Information

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Age Range: 12 - 17 years

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## Customer Reviews

Gr 6 Up  Beginning with the earliest ideas about the stars and their relationship to Earth, Miller chronicles how scientists challenged prevailing beliefs that the Earth was the center of the universe. For example, Copernicus's 1514 publication of his  "Commentariolus,"  a six-page essay he distributed to his friends, proposed six new scientific cosmological explanations,

including that “All the planets orbit the sun.” Miller objectively explains the existing belief system upheld by the powerful Catholic Church and its resistance to change. Reproductions of ancient texts by Copernicus, Kepler, Galileo, Newton, and Brahe are featured. Text boxes amplify the main text nicely. A two-page glossary provides helpful definitions of such terms as “parallax,” “cosmology,” and “retrograde motion.” Some of these terms are included in the two-page index. This is a useful, first purchase for astronomy report writers and those seeking biographical information about important scientists. —Frances E. Millhouser, formerly at Fairfax County Public Library, VA

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This informative book traces the gradual shift from an earth-centered view of the universe to the realizations that the planets move in elliptical orbits around the sun and that the solar system is not the center of the universe. Beginning in the early 1500s, when Copernicus published his ideas, these sometimes dangerous concepts gained traction over the next two centuries through the work and publications of Kepler, Galileo, and Newton. After an intriguing chapter on modern geocentrism, Miller briefly considers the roles of religion and science in people’s lives. He explains concepts clearly and places each scientist’s work within the context of generally held beliefs in his society. Readers could glean much of this information by reading the biographies of the scientists discussed, but the book’s focus on the ideas, their controversial nature, and their gradual acceptance is very useful. The book’s illustrations are well chosen and include archival images of the universe as well as photos of sites and artifacts. A solid discussion of a pivotal time in science history. Grades 6-9. --Carolyn Phelan

A very informative and concise discussion of this very interesting period in history and the beginning of science. A good summary of the period from Copernicus through Newton. Sources and notes are included.

This is a very basic look at the four scientists who really established that the Earth was not the center of the universe. The book is simply written and no background in astronomy is required. The book is short but author Ron Miller covers everything necessary to tell the story. A particularly interesting aspect of the story is the conflict between the church and science. I would have liked the book to be longer because there is a lot to say on the subject and the book is so well written.

Veterans of this subject area may find the book somewhat elementary, nonetheless I recommend this book for anyone curious about the universe and Earth's place in it.

This book provides an easy to read yet generally accurate introduction to how we learned that the Earth was not the center of the universe. It walks through the observations and logic that brilliant scientists used to overturn centuries of wrong-headed beliefs. It also discusses the resistance they encountered. It is very hard to change widely held beliefs, especially when they are endorsed by a priestly class, based merely on facts and reason. The layout is relatively clean and uncluttered, and the illustrations appropriate and well placed. While I generally found little to quibble with technically, on page 44 there is a box titled "Magic Glasses" that suggests that Hans Lippershey's son invented the telescope while playing with some lenses. Based on everything I know that is a fairly tale. A monograph written by Rolf Willach, "The Long Route to the Invention of the Telescope," is probably the definitive answer to how the telescope was "invented". (It is, of course, aimed at a vastly different audience than the current book.) That one quibble aside, this book is a winner. I was provided a copy for review by the publisher.

This is an interesting brief look into the history of early cosmology and the men who risked persecution or death because of their beliefs and teachings about a heliocentric universe, when church doctrine dictated a geocentric one. I enjoyed sharing this book with my daughter but was a bit frustrated that Kepler was listed in the title as a scientist being covered, when his name was only mentioned a couple of times. Since we are learning about scientists in school this book got set aside for a lot longer than I would have after our studies of Galileo because I was waiting until it was time to cover Kepler. Perfect for middle/high school age students.

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