The Music of Pythagoras - Kitty Ferguson 2011-01-10 The enthralling story of Pythagoras and the Pythagoreans, whose insights transformed the ancient world and still inspire the realms of science, mathematics, philosophy, and the arts. “Pythagoras’s influence on the ideas, and therefore on the destiny, of the human race was probably greater than that of any single man before or after him,” wrote Arthur Koestler. Though most people know of him only for the famous Pythagorean Theorem ($a^2 + b^2 = c^2$), in fact the pillars of our scientific tradition—belief that the universe is rational, that there is unity to all things, and that numbers and mathematics are a powerful guide to truth about nature and the cosmos—hark back to the convictions of this legendary sixth-century B.C. scholar. Born around 570 B.C. on the cultured Aegean island of Samos, Pythagoras (according to ancient tales) studied with the sage Thales nearby at Miletus, and with priests and scribes in Egypt and Babylon. Eventually he founded his own school at Croton in southern Italy, where he and his followers began to unravel the surprising deep truths concealed behind such ordinary tasks as tuning a lyre. While considering why some string lengths produced beautiful sounds and others discordant ones, they uncovered the ratios of musical harmony, and recognized that hidden behind the confusion and complexity of nature are patterns and orderly relationships. They had surprised the Creator at his drafting board and had glimpsed the mind of God! Some of them later would also find something darker in numbers and nature: irrationality, a revelation so unsettling and subversive that it may have contributed to the destruction of their brotherhood. Music by the Numbers - Eli Maor 2020-03-10 How music has influenced mathematics, physics, and astronomy from ancient Greece to the twentieth century Music is filled with mathematical elements. The works of Bach are often said to possess a math-like logic, and Arnold Schoenberg, Iannis Xenakis, and Karlheinz Stockhausen wrote music explicitly based on mathematical principles. Yet Eli Maor argues that it is music that has had the greater influence on mathematics, not the other way around. Starting with Pythagoras, proceeding through Schoenberg, and bringing the story up to the present with contemporary string theory, Music by the Numbers tells a fascinating story of composers, scientists, inventors, and eccentrics who have played a role in the age-old relationship between music, mathematics, and the physical sciences. Weaving compelling stories of historical episodes with Maor’s personal reflections as a mathematician and lover of classical music, this book will delight anyone who loves math and music. Music and Mathematics - John Fauvel 2006 From Ancient Greek times, music has been seen as a mathematical art, and this relationship has fascinated generations. This new in paperback edition of diverse, comprehensive and fully-illustrated papers, authored by leading scholars, links the two fields in a lucid manner that is suitable for students of each subject as well as the general reader. Pythagoras - Dimitra Karamanides 2005-12-15 Biography of the Greek philosopher Pythagoras and his lasting contributions on the fields of mathematics and philosophy. Pythagoras - Kitty Ferguson 2011-03-03 This is the story of Pythagoras and the Pythagoreans, whose insights transformed the ancient world and still inspire the realms of science, mathematics, philosophy and the arts. Einstein said that the most incredible thing about our universe was that it was comprehensible at all. As Kitty Ferguson explains, Pythagoras had much the same idea - but 2,500 years earlier. Though known by many only for his famous Theorem, in fact the pillars of our scientific tradition - belief that the universe is rational, that there is unity to all things, and that numbers and mathematics are a powerful guide to truth about nature and the cosmos - hark back to the convictions of this legendary scholar. Kitty Ferguson brilliantly evokes Pythagoras’ ancient world of, showing how ideas spread in antiquity, and chronicles the incredible influence he and his followers have had on so many extraordinary people in the history of Western thought and science. ‘Pythagoras’ influence on the ideas, and therefore on the destiny, of the human race was probably greater than that of any single man before or after him’. Arthur Koestler. The Harmony of the Spheres - Joscelyn Godwin 1992-11-01 Professor of Music at Colgate University and a widely respected musicologist, Godwin traces the history of the idea, held since ancient times, that the whole cosmos, with its circling planets and stars, is in some way a musical or harmonious entity. The author shows how this concept has continued to inspire philosophers, astronomers, and mystics from antiquity to the present day. Pythagoras - Christoph Riedweg 2012-03-27 One of the most important mathematical theorems is named after Pythagoras of Samos, but this semi-mythical Greek sage has more to offer than formulas. He is said to have discovered the numerical nature of the basic consonances and transposed the musical proportions to the cosmos, postulating a “harmony of the spheres.” He may have coined the words “cosmos” and “philosophy.” He is also believed to have taught the doctrine of transmigration of souls and therefore to have advised a vegetarian diet. Ancient legends have Pythagoras conversing with dogs, bears, and bulls. A distinctly Pythagorean way of life, including detailed ritual regulations, was observed by his disciples, who were organized as a secret society. Later, Pythagorean and Platonic teachings became fused. In this Platonomized form, Pythagoreanism has remained influential through medieval Christianity and the Renaissance down to the present. Christoph Riedweg's book is an engaging introduction to the fundamental contributions of Pythagoras to the establishment of European culture. To penetrate the intricate maze of lore and ascertain what history can tell us about the philosopher, Riedweg not only examines the written record but also considers Pythagoras within the cultural, intellectual, and spiritual context of his times. The result is a vivid overview of the life and teachings of a crucial Greek thinker and his most important followers. The Music of the Spheres - Jamie James 1995-06 “(James) relishes the sheer quirkiness of intellectual history, rescuing some of the battle histories of scientists and composers from the revisionism of textbook biographies and producing a graceful and entertaining account of matters seldom presented to the general reader.”—THE NEW YORKER “A provocative, engaging reassessment of the Western musical tradition and its relation to science.” – PUBLISHERS WEEKLY Pythagoras and the Ratios - Julie Ellis 2021-11-01 Julie Ellis and Phyllis Hornung Peacock team up once again to explore Pythagorean ratios in this humorous sequel to WHAT’S YOUR ANGLE, PYTHAGORAS? Pythagoras and his cousins want to win a music contest, but first they must figure out how to play their instruments in tune, something that’s never been done before. While trying to fix the problem, Pythagoras makes an important discovery--notes that sound pleasant together have a certain mathematical...
relationship. When Pythagoras applies this ratio to his cousins' pipes and lyres, the result is music to the ears.

**The Pythagorean Theorem**

Alfred S. Posamentier Although we all remember the Pythagorean Theorem from our school days, not until you read this book will you find out about the marvelous treasures this most famous mathematical concept holds. In an easily understood manner, the author entertains his readers with the wonders surrounding this theorem. This is the sort of treatment that will help popularize mathematics.-Charlotte K. Frank, PhD, SVP, research and development, McGraw-Hill Education, The McGraw-Hill Companies

Using the familiar Pythagorean theorem as the main theme the authors show the power and beauty of mathematics as we would have perhaps never have seen it when we were first introduced to this ubiquitous theorem in our school days. This book is a must read for anyone with even a small interest in mathematics.-Daniel J. Bryan, principal, Bergen County Academies, Hackensack, NJ

The first time I have enjoyed anything about mathematics.-Bob Simon, 60 Minutes Correspondent

Not only is this book a very valuable resource for mathematics teachers, but it is also a book that can convince the general public that there is genuine beauty in mathematics. Perhaps this book will help bring 'conversions' to mathematics!-Dr. Anton Dobart, director general, Austrian Ministry for Education, Art and Culture

It is often overheard in academic environments that 'math is fun!' This little book on the Pythagorean theorem is surely proof enough, especially since, like the theorem, the fun is on almost every page.-Leon M. Lederman, Nobel laureate

The Pythagorean theorem may be the best-known equation in mathematics. Its origins reach back to the beginnings of civilization, and today every student continues to study it. What nonmathematicians don't understand or appreciate is why this simply stated theorem has fascinated centuries. In this entertaining and informative book, veteran math educator Alfred S. Posamentier makes clear the significance of this theorem delighfully clear. He begins with a brief history of Pythagoras and the early use of his theorem by the ancient Egyptians, Babylonians, Indians, and Chinese, who used it intuitively long before Pythagoras' name was attached to it. He then shows the many ingenious ways in which the theorem has been proved visually using highly imaginative diagrams. Some of these go back to ancient mathematicians: others are comparatively recent proofs, including one by the twentieth president of the United States, James A. Garfield. After demonstrating some curious applications of the theorem, Posamentier then explores the Pythagorean triples, pointing out the many hidden surprises of the three numbers that can represent the sides of the right triangle (e.g., 3, 4, 5, and 5, 12, 13). And many will truly amaze the reader. He then turns to the Pythagorean means (the arithmetic, geometric, and harmonic means). By comparing their magnitudes in a variety of ways, he gives the reader a true appreciation for these mathematical concepts. The final two chapters view the Pythagorean theorem from an artistic point of view—namely, how Pythagoras' work manifests itself in music and how the Pythagorean theorem can be applied in the context of music theory. The use of the Pythagorean theorem for conveying the significance of this key equation to those with little math background will inform, entertain, and inspire the reader, once again demonstrating the power and beauty of mathematics.-Alfred S. Posamentier, Ph.D. (New York, NY), is dean of the School of Education and professor of mathematics education at the City University of New York. He has published more than 40 books in the area of mathematics and mathematics education, including The Fabulous Fibonacci Numbers, Pt: A Biography of the World's Most Mysterious Number, and Math Charmers: Tantalizing Tidbits for the Mind.

**The Fifth Hammer**

Daniel Heller-Roazen 2011 An ancient tradition holds that Pythagoras discovered the secrets of harmony within a forge when he came across five men hammering with five hammers, producing a wondrous sound. Four of the five hammers stood in a marvelous set of proportions, harmonizing; but there was also a fifth hammer. Pythagoras saw and heard that...
Absolute Music—Mark Evan Bonds 2014-05-09 What is music, and why does it move us? From Pythagoras to the present, writers have struggled to isolate the essence of “pure” or “absolute” music in ways that also account for its profound effect. In Absolute Music: The History of an Idea, Mark Evan Bonds traces the history of these efforts across more than two millennia, paying special attention to the relationship between music’s essence and its qualities of form, expression, beauty, autonomy, as well as its perceived capacity for the philosophical truths. The core of this book focuses on the period between 1850 and 1945. Although the idea of pure music is as old as antiquity, the term “absolute music” is itself relatively recent. It was Richard Wagner who coined the term, in 1846, and he used it as a pejorative in his efforts to expose the limitations of purely instrumental music. For Wagner, music that was “absolute” was isolated, detached from the world, sterile. His contemporary, the Viennese critic Eduard Hanslick, embraced this quality of isolation as a guarantor of purity. Only pure, absolute music, he argued, could realize the highest potential of the art. Bonds reveals how and why perceptions of absolute music changed so radically between the 1850s and 1920s. When it first appeared, “absolute music” was a new term applied to old music, but by the early decades of the twentieth century, it had become paradoxically—an old term associated with the new music of modernists like Schoenberg and Stravinsky. Bonds argues that the key developments in this shift lay not in discourse about music but rather the visual arts. The growing prestige of abstraction and form in painting at the turn of the twentieth century-line and color, as opposed to object-helped move the ideal of pure or absolute music to the cutting edge of musical modernism. By carefully tracing the evolution of absolute music from Ancient Greece through the Middle Ages to the twentieth-century, Bonds not only provides the first comprehensive history of this pivotal concept but also provokes new thoughts on the essence of music and how essence has been used to explain music’s effect. A long awaited book from one of the most respected senior scholars in the field, Absolute Music will be essential reading for anyone interested in the history, theory, and aesthetics of music.

The Pythagorean Theorem—Eli Maor 2019-11-19 An exploration of one of the most celebrated and well-known theorems in mathematics By any measure, the Pythagorean theorem is the most famous statement in all of mathematics. In this book, Eli Maor reveals the full story of this ubiquitous geometric theorem. Although attributed to Pythagoras, the theorem was known to the Babylonians more than a thousand years earlier. Pythagoras may have been the first to prove it, but his proof—if indeed he had one—is lost to us. The theorem itself, however, is central to almost every branch of science, pure or applied. Maor brings to life many of the characters that make up the story behind the theorem, providing a fascinating backdrop to perhaps our oldest enduring mathematical legacy.

The Manual of Harmonics of Nicomachus the Pythagorean—Nicomachus (of Gerasa) 1994-01-01 In ancient Greek thought, the musical scale discovered by the philosopher Pythagoras was seen as a utopian model of the harmonic order behind the structure of the cosmos and human existence. Through proportion and harmony, the musical scale bridges the gap between two extremes. It encapsulates the most fundamental pattern of harmonic symmetry and demonstrates how the phenomena of nature are inseparably related to one another through the principle of reciprocity. Because of these relationships embodied in its structure, the musical scale was seen as an ideal metaphor of human society by Plato and other Pythagorean thinkers, for it is based on the cosmic principles of harmony, reciprocity, and proportion, whereby each part of the whole receives its just and proper share. This book is the first ever complete translation of The Manual of Harmonics by the Pythagorean philosopher Nicomachus of Gerasa (second century A.D.) published with a comprehensive, chapter-by-chapter commentary. It is a concise and well-organized introduction to the study of harmonics, the universal principles of relation embodied in the musical scale. Also included is a remarkable chapter-by-chapter commentary by the translator, Flora Levin, which makes this work easily accessible to the reader today. Dr. Levin explains the principles of Pythagorean harmony, provides extensive background information, and helps to situate Nicomachus’ thought in the history of ideas. This important work constitutes a valuable resource for all students of ancient philosophy, Western cosmology, and the history of music.

The Pythagorean Plato—Ernest G. McClain 1977

Pythagoras’ Trousers—Margaret Wertheim 1997 A spirited look at the relationship between physics and religion—and the implications for both sexes.

Music—Ted Gioia 2019-10-15 “A dauntingly ambitious, obsessively researched” (Los Angeles Times) global history of music that reveals how songs have shifted societies and sparked revolutions. Histories of music overwhelmingly suppress stories of the outsiders and rebels who created musical revolutions and instead celebrate the mainstream assimilators who borrowed innovations, diluted their impact, and disguised their sources. In Music: A Subversive History, Ted Gioia reclames the story of music for the riffraff, insurperts, and provocateurs. Gioia tells a four-thousand-year history of music as a global source of power, change, and upheaval. He shows how outcasts, immigrants, slaves, and others at the margins of society have repeatedly served as trailblazers of musical expression, reinventing our most cherished songs from ancient times all the way to the jazz, reggae, and hip-hop sounds of the current day. Music: A Subversive History is essential reading for anyone interested in the meaning of music, from Sappho to the Sex Pistols to Spotify.

The Pythagorean Sourcebook and Library—David R. Fideler 1987-07-01 This anthology, the largest collection of Pythagorean writings ever to appear in English, contains the four ancient biographies of Pythagoras and over 25 Pythagorean and Neopythagorean writings from the Classical and Hellenistic periods. The material of this book is indispensable for anyone who wishes to understand the real spiritual roots of Western civilization.

Pythagoras’ Legacy—Marcel Danesi 2020-02-03 As the famous Pythagorean statement reads, ‘Number rules the universe’, and its veracity is proven in the many mathematical discoveries that have accelerated the development of science, engineering, and even philosophy. A so called “mathematics has guided and stimulated many aspects of human innovation down through the centuries. In this book, Marcel Danesi presents a historical overview of the ten greatest achievements in mathematics, and dynamically explores their importance and effects on our daily lives. Considered as a chain of events rather than isolated incidents, Danesi takes us from the beginnings of modern day mathematics with Pythagoras, through the concept of zero, right the way up to modern computational algorithms. Loaded with thought-provoking practical exercises and puzzles, Pythagoras’ Legacy allows the reader to apply their knowledge and discover the significance of mathematics in their everyday lives.

Iamblichus’ Life of Pythagoras—Thomas Taylor 2021-01-18


Hidden Harmonies—Ellen Kaplan 2011-01-04 The Harvard mathematician authors of The Art of the Infinite present a history of the famous relation “A squared plus B squared equals C squared” that assesses its contributors from da Vinci to the Freemasons while analyzing its numerous proofs and applications.

Pythagoras, Kepler, and the Music of the Spheres—Allen D. Dorfman 1976

Learning Strategies for Musical Success—Michael Griffin 2013 When it comes to musical skill, why is it that some people achieve so much more than others? We are frequently led to believe this is because of a talent hardwired into their DNA. The author dismisses that notion in favour of others? We are frequently led to believe this is because of a talent hardwired into their DNA. The author dismisses that notion in favour of rather the visual arts. The growing prestige of abstraction and form in the twentieth century, it had become—paradoxically—an old term associated with the mainstream assimilators who borrowed innovations, diluted their impact, and disguised their sources. In Music: A Subversive History, Ted Gioia reclames the story of music for the riffraff, insurperts, and provocateurs. Gioia tells a four-thousand-year history of music as a global source of power, change, and upheaval. He shows how outcasts, immigrants, slaves, and others at the margins of society have repeatedly served as trailblazers of musical expression, reinventing our most cherished songs from ancient times all the way to the jazz, reggae, and hip-hop sounds of the current day. Music: A Subversive History is essential reading for anyone interested in the meaning of music, from Sappho to the Sex Pistols to Spotify.
Music in the Works of Pythagoras of Samos and the Pythagoreans-Juliano Ozga 2013-05 The subject of this book, as per the title, is music (from the Greek μουσική τέχνη - musikê tèchne, i.e. "the art of the muses") in the works of Pythagoras, the first intellectual in the history of philosophy to make that art the center of his worldview, even including it in the so-called "Exact Sciences". In order to have better grasp and clarity regarding the intellectual production of Pythagoras, whose written works survived to the 21st century in a very fragmented form and in much smaller number, it is necessary to research the historical sources contemporary to theophsophler, as well as those which succeeded him.

The Math Book-Clifford A. Pickover 2009 This book covers 250 milestones in mathematical history, beginning millions of years ago with ancient "ant odometers" and moving through time to our modern-day quest for new dimensions.

Architectural Principles in the Age of Humanism: Rudolf Wittkower 1971 Sir Kenneth Clark wrote in the Architectural Review, that the first result of this book was "to dispose, once and for all, of the hedonist, or purely aesthetic, theory of Renaissance architecture," and this defines Wittkower's intention in a nutshell.

Measuring Heaven-Christian L. Joost-Gaugier 2007 Surviving fragments of information about Pythagoras (born ca. 570 BCE) gave rise to a growing set of legends about this famous sage and his followers, whose reputations throughout Antiquity and the Middle Ages have never before been studied systematically. This book is the first to examine the unified concepts of harmony, proportion, form, and order that were attributed to Pythagoras in the millennium after his death and the important developments to which they led in art, architecture, mathematics, astronomy, music, medicine, morals, religion, law, alchemy, and the occult sciences. In this profusely illustrated book, Christian L. Joost-Gaugier sets out the panorama of Pythagoras's influence and that of Christian and Jewish thinkers who followed his ideas in the Greek, Roman, early Christian, and medieval worlds. In illuminating this tradition of thought, Joost-Gaugier shows how the influence of Pythagoreanism was far broader than is usually realized, and that it affected the development of ancient and medieval art and architecture from Greek and Roman temples to Gothic cathedrals. Joost-Gaugier demonstrates that Pythagoreanism--centered on the dom memory of a single person that endured for centuries and grew ever-greater--inspired a new language for artists and architects, enabling them to be modern.

Pythagoras-Thomas Stanley 2010-05-01 The timeless brilliance of this exhaustive survey of the best classical writers of antiquity on Pythagoras was first published in 1687 in Thomas Stanley's massive tome, The History of Philosophy. It remains as contemporary today as it was over three hundred years ago. The text of the 1687 book has been reset and modernized to make it more accessible to the modern reader. Spelling has been regularized, obsolete words not found in a modern dictionary have been replaced, and contemporary conventions of punctuation have been used. Biographical sketches of Thomas Stanley and Pythagoras by Manly Hall, founder of the Philosophical Research Society, have been included, along with a profound overview of Pythagorean philosophy by Platonic scholar Dr. Henry L. Drake. The extensive Greek language references throughout the text have been corrected and contextualized, and reset in a modern Greek font. Each quotation has been verified with the source document in Greek. An extensive annotated appendix of these classical sources is included. A complete bibliography details all the reference works utilized, and a small Glossary defines a number of terms, especially those from musical theory, which may be unfamiliar to the non-technical reader.

The Journey to the East-Hermann Hesse 2003-02 The hero, a German choirmaster recalls an unfruitful pilgrimage to the East during his youth and begins to realize its hidden spiritual meanings. Reprint.

Brill's Companion to the Reception of Pythagoras and Pythagoreanism in the Middle Ages and the Renaissance-Irene Ciaaizzo 2021-11-25 "A wide range of specialists provide a comprehensive overview of the reception of Pythagorean ideas in the Middle Ages and the Renaissance, shedding new light especially on the understudied 'Medieval Pythagoras' of the Latin West. They also explore the survival of Pythagoreanism in the Arabic, Jewish, and Persian cultures, thus adopting a multicultural perspective. Their common concern is to detect the sources of this reception, and to follow their circulation in diverse linguistic areas. The reader can thus have a panoramic view of the major themes belonging to the Pythagorean heritage-number philosophy and the sciences of the quadrivium; ethics and way of life; theology, metaphysics and the soul - until the Early Modern times. Contributors are: Constantinos Macris, Cecilia Panti, Andrew Hicks, Sonja Breunjes, Gad Freudenthal, Trivi Langmermann, Anna Izdebska, Aurélien Robert, Daniel De Smet, Carmela Baffioni, Irene Ciaaizzo, Marta Borgo, Iacopo Costa, David Albertson, Denis Robichaud, Jean-Pierre Brach"--

Music in the works of Pythagoras of Samos and the Pythagoreans-JULIANO OZGA 2021-06-16 The subject of this book, as per the title, is music (from the Greek μουσική τέχνη - musikê tèchne, i.e. "the art of the muses") in the works of Pythagoras, the first intellectual in the history of Philosophy to make that art the center of their worldview, even including it in the so-called "Exact Sciences". In order to have more comprehension and clarity with regards to the intellectual production of Pythagoras, whose written works survived to the 21st century in a very fragmented form and in much smaller number, it is necessary to research the historical sources contemporary to the philosopher, as well as those which succeeded him.

What's Your Angle, Pythagoras?-Judy Ellis 2004-07-01 In ancient Greece, young Pythagoras discovers a special number pattern (the Pythagorean theorem) and uses it to solve problems involving right triangles.

Harmonies of the World-Johannes Kepler 2017-05-26 Johannes Kepler published Harmonies of the World in 1619. This was the summation of his theories about celestial correspondences, and ties together the ratios of the planetary orbits, musical theory, and the Platonic solids. Kepler's speculations are long discredited. However, this work stands as a bridge between the Hermantic philosophy of the Renaissance, which sought systems of symbolic correspondences in the fabric of nature, and modern science. And today, we finally have heard the music of the spheres: data from outer system probes have been translated into acoustic form, and we can listen to strange clicks and moans from Jupiter's magnetosphere.