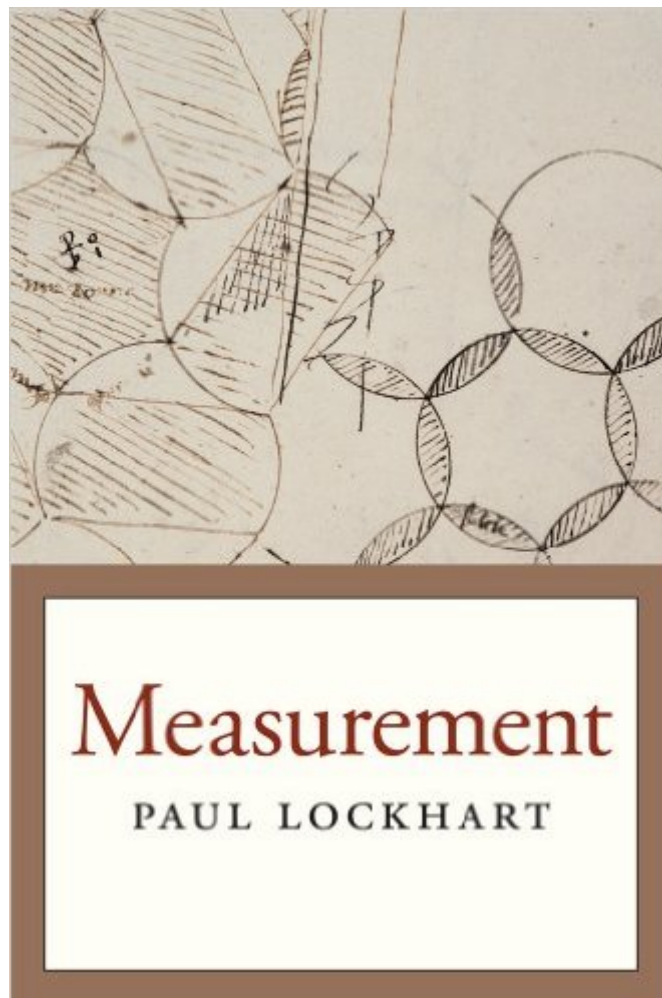


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# Measurement



## Synopsis

Lockhart's 'Mathematician's Lament' outlined how we introduce mathematics to students in the wrong way. This book explains how mathematics should be done. With plain English and pictures, he makes complex ideas about shape and motion intuitive and graspable, and offers a solution to mathematic phobia.

## Book Information

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## Customer Reviews

Lockhart is famous in the math world for a 2002 essay about the state of mathematics teaching. He described it as akin to teaching music by forcing children to transcribe notation without ever touching an instrument or singing. Measurement is his attempt to change the equation: a conversational book about mathematics as an art that invites the reader to join in the fun. Sounding every bit the teacher whose love for his subject is infectious, he guides us through exercises in geometry and calculus--giving information and hints along the way while always encouraging us to ask, and answer, "Why?" Lockhart does not try to make math seem easy; instead he wants his readers to understand that the difficulty brings rewards.--Evelyn Lamb "Scientific American" (09/01/2012) The book is a love song and a philosophical manifesto about the pleasures and frustrations, but mainly the pleasures, of doing math.--Steven Strogatz, "New York Times" Contributor And Author Of "The Joy Of X" (Forthcoming) No matter what mathematical education you had, or didn't have, you will be delighted by this enticing book if you take up Paul Lockhart's invitation to engage in the mathematical sensibility that radiates from its pages, and try your own

hand not only at answering, but even more fruitfully, at formulating questions as you explore the world of mathematics.--Barry Mazur, Author Of "imagining Numbers (Particularly The Square Root Of Minus Fifteen)" Prospective readers should rest assured that while aimed at the nonexpert, Lockhart's writing is sophisticated and mathematically modern...In place of the usual boxed and high-lighted formulas and tricks, "Measurement" offers questions to be pondered. Lockhart invites readers to trade tutorial fake problems about actual objects, which lead students to abhor school mathematics, for real problems about fantastical objects, which lead mathematicians to love math.--Brie Finegold "Science" (11/09/2012) This book forced me to use mental muscles I haven't exercised in a long time, but it felt fantastic! Paul Lockhart is a mathematics evangelist; his passion for his subject is evident on every page, in every line. Looking at the subject of Measurement, he takes the reader on a journey that covers geometry, algebra, trigonometry, and on through differential calculus. He has a conversational tone and self-deprecating humor that sets the reader at ease. He understands that many people have been turned off of mathematics. His attitude is playful and joyous...Math is usually taught in such a compartmentalized way that it loses any meaning or coherence, and certainly any sense of wonder or beauty, but "Measurement" restores the connection. Paul Lockhart feels that math is the most beautiful, abstract and pure art form, and that it is actually fun! By the end of the book, you come to agree with him.--Gretchen Wagner "Sacramento Book Review" (12/07/2012) There are many books available these days on what mathematicians do, and this is one of the best...Lockhart's approach is fresh and effective.--C. A. Gorini "Choice" (02/01/2013)

Paul Lockhart teaches mathematics at Saint Ann's School in Brooklyn, New York.

Mr. Lockhart has previously written (A Mathematician's Lament) about the joyless methods that were used to teach most of us mathematics. Fortunately I was one who found the joy behind both the practical significance of arithmetic (yes the bank needs to know the exact balance of your account even if you don't care to figure it out) and the memorization of tables; now called math facts (yes, even musicians need to practice scales and train their fingers if they wish to make music, not just appreciate it). If you already know how joyful and remarkable mathematics can be, Mr. Lockhart writes in a way that is easy to read and offers many examples of familiar problems and solves them in a way that emphasizes the elegance and beauty of both the problem and its solution. If you wonder WHY some of us KNOW that mathematics is elegant and beautiful and wish to share that joy, give the book a whirl. You don't need to know more about mathematics than basic arithmetic.

As long as you know that algebra and geometry exist; expertise is not required, you will do fine. However as easy as it is to read, be warned that sometimes the mathematics and logic will appear so clearly as if by magic and other times your brain will be challenged and you may struggle mentally as mightily as a woman struggles physically (and mentally) to give birth. Whether the struggle is worth it is entirely up to you and fortunately for you, unlike the woman who cannot undo her pregnancy if she finds the struggle to give birth too difficult, you can just give up and read on to the next problem and hope it is easier. There are many, many problems to solve in the book.

A wonderful book! It shows clearly the beauty of mathematics at a quite elementary level. The author goes to great lengths to show what is interesting about Mathematics. It is not the complicated formulae, or the algebra, but great, simple, utterly convincing ideas. If the reader is willing to think hard while reading, he/she will be rewarded by many stunning results presented in a completely straightforward manner. The first part, probably the one that best achieves its stated purpose, deals only with geometry. Since the basic objects of geometry (straight lines, circles, angles...) are familiar to anybody, it is really possible to prove beautiful results without using any of the apparatus, such as algebra and calculus, which many people find difficult. The second part is an attempt to introduce algebra and calculus in a very simple and well motivated way. Since I already know the material quite well, I cannot really say whether the attempt actually succeeds, but I certainly found the presentation very striking and quite engrossing.

Math is fun and everyone can do it, it just needs as much practice as any other thing that you want to be good at. These seem to be Lockhart's main messages and the book wraps them into more than 50 comprehensive sections. The sections combine explanations and plenty of illustrations with questions (or homework) for the reader, so the reader should expect some time away from the book thinking about the problems and maybe discover their own questions and answers. There is a lot of fun and entertainment in these some 300 pages, but there are also (maybe naturally) many things that could have been improved. Lockhart is a mathematician and he repeatedly points out that this profession is completely unconnected from the physical world. To make this even clearer, all the sketches in the book are what looks like hand-copied versions of computer printouts - imperfect representations of the ideal object one has in mind. Almost from the very first page, though, any units are removed from the discussion so we deal with numbers only. But instead of simply referring to meters, inches, degrees or whatever unit you want to use, in the following we are constantly reminded of arbitrary "units of length" and others. In the same way, the book moves from

measurement to motion by introducing time - which is then again simply replaced by (or reduced to) an arbitrary dimension similar to length. All that would have been a little easier to swallow if the title of the book had been "geometry" instead of "measurement." Maybe the better approach is to not try to force the reader to decouple the sketches (i.e. the real world) from the objects in mind. Also it is not quite clear who this book is aiming at. Although it starts out with very simple ideas, it is probably not intended as a replacement for a basic course in geometry. While the topics pick up speed pretty soon, the style almost moves in the opposite direction. And I would rather let the reader discover the beauty of the subject herself instead of repeatedly interrupting the text with joyous exclamations by the author. To sum it up, this is still a fun book with an almost honorable purpose. While there were things that I really didn't like, they probably won't interrupt other people's enjoyment of the book. So give it a try.

The art of mathematics is the real subject of this book--and its treasure. Paul Lockhart reveals that with geometric forms and the numerical relationships to be unlocked in them. He caused me to see the beauty and complexity of the mathematic possibilities--and the perplexity and difficulty he delightfully endures discovering methods and formulas to calculate those relationships. The brain wrenching puzzles he delights in solving are the penchant of a mathematician, and far beyond the simple arithmetic I learned as a teen. But reading about his art now gave me a view of mathematics that I needed then, but was hidden to me, when as a teenager I turned away those subjects intimidated. Had I known about the art of it, I might have ventured into Paul's world of numerical wonders.

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