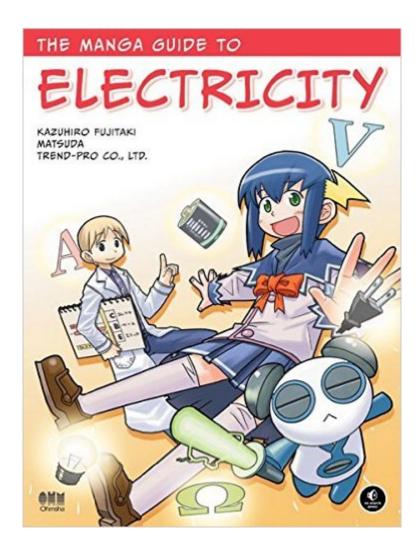
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# The Manga Guide To Electricity





# Synopsis

Rereko is just your average high-school girl from Electopia, the land of electricity, but she's totally failed her final electricity exam! Now she has to go to summer school on Earth. And this time, she has to pass Luckily, her ever-patient tutor Hikaru is there to help. Join them in the pages of The Manga Guide to Electricity as Rereko examines everyday electrical devices like flashlights, heaters, and circuit breakers, and learns the meaning of abstract concepts like voltage, potential, current, resistance, conductivity, and electrostatic force. The real-world examples that you'll find in The Manga Guide to Electricity will teach you: What electricity is, how it works, how it's created, and how it can be usedThe relationship between voltage, current, and resistance (Ohm's law)Key electrical concepts like inductance and capacitanceHow complicated components like transformers, semiconductors, diodes, and transistors workHow electricity produces heat and the relationship between current and magnetic fields If thinking about how electricity works really fries your brain, let The Manga Guide to Electricity teach you all things electrical in a shockingly fun way.

# **Book Information**

Age Range: 9 and up Series: Manga Guide To... Paperback: 232 pages Publisher: No Starch Press; 1 edition (March 21, 2009) Language: English ISBN-10: 1593271972 ISBN-13: 978-1593271978 Product Dimensions: 7 x 0.7 x 9.1 inches Shipping Weight: 1 pounds (View shipping rates and policies) Average Customer Review: 4.7 out of 5 stars Â See all reviews (37 customer reviews) Best Sellers Rank: #69,039 in Books (See Top 100 in Books) #5 in Books > Comics & Graphic Novels > Manga > Educational & Nonfiction #10 in Books > Children's Books > Education & Reference > Science Studies > Electricity & Electronics #25 in Books > Science & Math > Physics > Electromagnetism > Electricity

## **Customer Reviews**

The irrepressible Japanese Manga is back, this time talking about electricity. The series from the No Starch Press uses the genre of Japanese cartoons to teach serious topics in science and technology. The book starts with an overview of the physical nature of electricity, a description of

positive and negative charge, and the units used to measure electricity including the difference between current flow (amperage) and current force (volts). It introduces electricity in the many forms we use and experience daily, including static electricity, direct current as found in flashlights, and electrical circuits such as one finds in buildings. It introduces Ohm's law, the basic relationship between current flow, current force, and the resistance of the electrical conductor. It then proceeds to discuss many other practical topics including the relationship between current, resistance, and heat generation, and how electricity generates magnetic fields. Fleming's right- and left-hand rules are described. Basic components of circuits found in devices such as MP3 players or televisions are presented. These include coils, capacitors, and solid state devices such as diodes, transistors, temperature and optical sensors. There is a six page index. There are no problems to solve in the book, it has no significant math. One of the strengths of the series that while the basic concepts are introduced through the story told via the cartoons, additional information of a more detailed nature is available at the end of each chapter. This provides an opportunity for the reader who is interested in further study on a topic. e.g.

I picked this book up for fun. I already know a lot about electricity. I have been known to read electron tube spec sheets and circuit designs for fun and amusement. I've been known to scrounge around at ham radio festivals and used book stores looking for old design manuals or tech books. So, I didn't buy this book because I needed/wanted to learn the material. I already know it. The book looked like a fun way to introduce the topic to a new generation. Guess what? I think it is. It was originally drawn and written in Japan a few years ago and was only recently translated into English. The story line is okay, but it won't rank up there with Watchmen and the like. This isn't a graphic novel. However, it is interesting enough to make a subject that can sometimes be difficult to absorb for new learners more accessible. The book begins with the assumption of no real background in electricity or electronics. It then builds up to a pretty solid foundation in basic theory and gives a clear understanding of how electricity works and can be created, influenced, and corralled by an engineer or circuit designer to do specific tasks. The book doesn't teach actual circuit design, but it does give a very clear introduction to very important concepts and components including voltage, potential, current, resistance, Ohm's Law, capacitance, batteries, magnetism, diodes, rectification, motors, both alternating and direct current, and even the main types of electricity generation in use. Each chapter starts with a part of a graphic tale that introduces specific concepts for that chapter in a clear and fun manner.

Based on the previous reader reviews, I was expecting The Manga Guide to Electricity to be similar to The Cartoon Guide to Physics where a lot of cartoons are used in conjunction with a loose storyline to present physical concepts one might expect in a textbook treatment of the subject. To highlight the strengths of The Manga Guide to Electricity and why I think it is a great book for eager students let me share my experience with the Cartoon Guide to Physics (CGP). When I first read the CGP I had completed one university course in physics. There were sections of the CGP I understood which were presented in a humorous and fun way. I cannot say that the CGP helped me learn physics or instill a deeper understanding of physics. It was entertaining, and there was a period of time as a student when I would unwind between homework and studying for exams by reading sections of the book. It was useful to reinforce concepts I had been studying and, once I understood a concept, the humor became more apparent. As a learning tool the CGP had value for the committed student, but in my estimation the target audience was expected to have more than just a budding interest in physics. I still have my physics textbook which I reference occasionally and next to it on the shelf, collecting dust, is the CGP. When my nine-year-old son began asking thoughtful guestions about electricity and electronics I wanted to sneak a good introductory book on the subject into his reading pile, something that might answer some of his questions ("Where does electricity come from?", "How does electricity work?", "Is electricity really like water?", "How does electricity make light?"). I ordered this book based on the reviews, expecting something like the Cartoon Guide to Physics with a youth savvy Japanese bent.

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