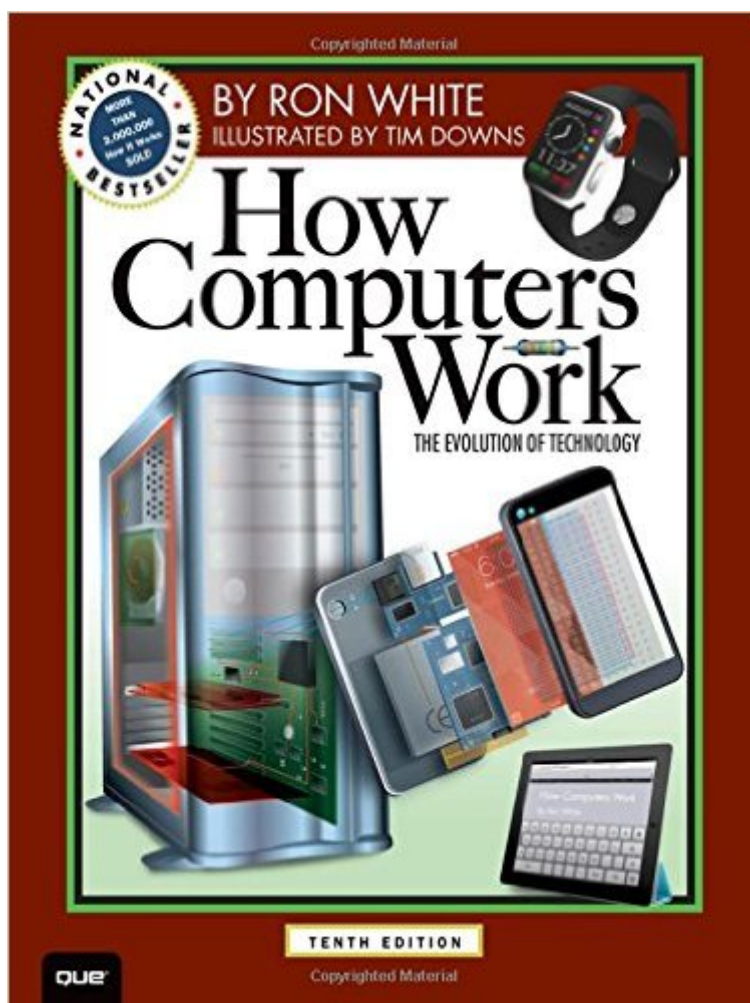


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# How Computers Work: The Evolution Of Technology, 10th Edition



## Synopsis

The Evolution of Technology

Having sold more than 2 million copies over its lifetime, *How Computers Work* is the definitive illustrated guide to the world of PCs and technology. In this new edition, you'll find detailed information not just about PCs, but about how changes in technology have evolved the giant, expensive computer dinosaurs of last century into the smaller but more powerful smartphones, tablets, and wearable computing of today. Whether your interest is in business, gaming, digital photography, entertainment, communications, or security, you'll learn how computing is evolving the way you live.

A full-color, illustrated adventure into the wonders of TECHNOLOGY

This full-color, fully illustrated guide to the world of technology assumes nothing and explains everything. Only the accomplished and award-winning team of writer Ron White and artist Tim Downs has the unique ability to meld descriptive text with one-of-a-kind visuals to fully explain how the electronic gear we depend on every day is made possible. In addition to all the content you've come to expect from prior editions, this newly revised edition includes all-new coverage of topics such as:

- How smartphones and tablet PCs put the power of a desktop computer in your hands—literally
- How computing technology is linking our homes, work place, entertainment, and daily communications
- How advances such as Facebook, Twitter, Google, eBay, and smartphones are expanding our universe of friends, knowledge, and opportunity
- How increased miniaturization leads to new products, such as smartphone, smartwatches, and Google Glass
- How computing technology takes advantages of quantum physics and innovations no one even imagined a few years ago

For two decades, *How Computers Work* has helped newbies understand new technology, while hackers and IT pros have treasured it for the depth of knowledge it contains. This is the perfect book about computing to capture your imagination, delight your eyes, and expand your mind, no matter what your technical level!

Beautifully detailed illustrations and jargon-free explanations walk you through the technology that is shaping our lives. See the hidden workings inside computers, smartphones, tablets, Google Glass, and the latest tech inventions.

## Book Information

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## Customer Reviews

I bought my grandson, a college freshman majoring in informatics, this book as a gift: *How Computers Work* (10th Ed.) by Ron White, First Printing, Dec. 2014. I pre-ordered it from back in November, 2014, and it did arrive in time for the holidays. While I applaud the effort and book overall, having owned several editions in the past, there are fundamental errors early in this first printing that could erode reader confidence, since the mistakes are so basic. I imagine this edition was rushed to press prior to the holiday season, and frankly, it shows. Now I must explain to my grandson the mistakes, and apologize. Here's just a sample of what I've found so far in Part 1:1. A table is not a computer, but a tablet such as an iPad is: Page 5, last paragraph: "--mainframe, desktop, table, digital music player, ..." P. 13, image 3, 4th sentence is not a sentence and doesn't help the explanation: "Resistance is how the material which the electricity is flowing." P. 15, image 5. The image of the rheostat is confusing and makes the opposite point it should. The way it is drawn, it contradicts the text. In fact, as the knob is turned clockwise, the amount of resistance should increase, not decrease as depicted in the image. When the knob in the diagram, as drawn, is turned clockwise, there is MORE resistive wire to travel through. The current out would therefore decrease. And that's just backwards to how knobs on radios and stereos normally work. Turning clockwise will increase the current out, not decrease it. Duh? See: <https://www.google.com/search?q=how+does+a+rheostat+work&espv=2&biw=731&bih=387&tbm=isch&tbo=u&source=univ&sa=X&ei=SzKtVI3mOoOnyQTDz4KoBg&ved=0CDAQsAQ&dpr=1.754>. P. 17, image of Mona Lisa is wrong, contradicts text to the left in section 6: The Mona Lisa appears in COLOR. This is NOT a half-tone image, consisting of only black and white dots. The whole example could be improved by showing a contrast between a half-tone (1-bit color) and, say, a 256-bit color image of Mona Lisa. E.g., see: <http://en.wikipedia.org/wiki/Halftone>. P. 36, first paragraph. Pages XXX-xxx are referred to. Where are these pages? 6. I bought the digital edition also, wondering if the

same mistakes are there. Yes, they are. Furthermore, the navigation when scrolling was not working correctly in the latest version of Firefox (34.05) for the Mac (OS X 10.10.1). When I use the left navigation menu, click on Chapter 1, How Waves take the Universe on a Joy Ride, then start scrolling down, the page jumps to the beginning of the book! I can't even read it, unless I start scrolling from the beginning of the book. Come on now, this is totally unacceptable. So I tried Chrome (Version 39.0.2171.95 (64-bit)). While the navigation works, the first Interaction just came up with an empty black box with a yellow border. It just does NOT work at all (but surprisingly it does in Firefox, and I can add ducks to the waves, if I FIRST scroll from the beginning of the book to get there).7. The interactive animation on Writing Data to RAM (and reading it) is confusing. When getting to Reading data from RAM (in the same interaction), the illustration is simply confusing. How can a capacitor send a current through a transistor that is CLOSED. The circuit is broken between the capacitor and the data line. How can current travel from the capacitor to the data line, if the switch is off? This is not logical. It must be wrong, or I'm missing something here. Overall, this is NOT a good start to the book, and makes me a doubter of the accuracy of some of the content in this first printing/web edition. I'm afraid I cannot recommend this book to others at this time with errors I've discovered in the first few dozen pages. I am not a computer novice, having started with programming in FORTRAN on mainframe computers with punched cards. I taught college students how to use computers over 4 decades. More recently, I've written interactive Web simulations, tutorials and tests that are widely used. My advice: Wait for a later printing when some of these rather basic and embarrassing errors are fixed in the 10th edition.

Beautiful illustrations, but I am finding errors. This one is forgivable, in the Introduction to the 10th Edition, page xviii: "...a computer that would return a solution in the form of punch cards". I remember punch cards for input, but not output. On page 17, I am asked to view an image of a two-bit Mona Lisa. But I see a color Mona Lisa. I think the image must be at least 8 bit. Also on page 17, the explanation for multi-bit sampling is not consistent with the Diagrams A and B that are referenced. The same diagrams are referenced a bit more intelligently in the discussion of sampling rate. Are the appropriate diagrams missing? Onward to Chapter 2, but I am disillusioned. Comments are welcome about suspected errors.

I have personally been involved with computers and computer technology since 1960, from huge IBM mainframes and the initial Apple and IBM compatible PCs, to the current host of devices that allow almost everyone instant worldwide communication and access to virtually unlimited

information. The evolution of this technology has been mind boggling. My former knowledge and expertise on the leading edge of this field is now lost to newer generations of science, children, and grandchildren. This book explains in simple terms with excellent illustrations the basics of computer technology. The New Jersey Computer Club, of which I am President, no longer builds, repairs, or programs computers, but tries to assist seniors in learning about, purchasing, and using computer related products. Many only want an inexpensive way to communicate by email or text with others, or to share pictures, or get information, or hear music or watch videos, and/or live in a world with online shopping and banking. But many others want to know why and how everything works. This book answers those basic questions, and introduces the concepts and terminology for further investigation. It's not a text that you must read cover to cover, getting lost in details along the way. It is a series of short well explained articles that you can peruse in any order that interests you. Today you may want to know about computer components; tomorrow the Internet; or maybe digital cameras or smart-phones. This is a great place to start. It is leisurely reading for everyone, and not a manual on a specific topic. The book title might be better, as "How Computer Technology Works" to differentiate it from prior editions that focused more on just computers. This book has an excellent selection of diverse topics that are both meaningful and current, especially in this rapidly changing field. Technical data that is soon obsolete is minimal, in favor of technical concepts that are more lasting. Periodic supplemental articles on new technology, or significant changes in existing technology, would be a welcome addition on the Que website for registered owners of this book, as well as a current technology time-line and references listing. No technical book of this size and complexity is perfect, and there are typos and errata that need correction, but I haven't found any other book that explains so much so well. Another winner for Que and Ron White. Thank you.

Overall a great idea for a book. I am really putting a void account of effort into the reading (trying to gain a solid understanding of computers). But there are numerous errors in just the first chapter alone. I am considering returning the book and finding a textbook. Funny how this is recommended reading for Harvard's CS50x course.

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