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# Stuff Matters: Exploring The Marvelous Materials That Shape Our Man-Made World



## Synopsis

Why is glass see-through? What makes elastic stretchy? Why does a paper clip bend? These are the sorts of questions that Mark Miodownik is constantly asking himself. A globally renowned materials scientist, Miodownik has spent his life exploring objects as ordinary as an envelope and as unexpected as concrete cloth, uncovering the fascinating secrets that hold together our physical world. From the teacup to the jet engine, the silicon chip to the paper clip, the plastic in our appliances to the elastic in our underpants, our lives are overflowing with materials. Full of enthralling tales of the miracles of engineering that permeate our lives, *Stuff Matters* will make you see stuff in a whole new way.

## Book Information

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## Customer Reviews

Until recently I had never heard the words 'material science.' Sure I knew there were all kinds of amazing things done to make stuff in our lives, stronger, thinner, cheaper, better, and more energy efficient. But, being a child of the 60's I just figured this was 'better living through chemistry.' Boy was I wrong. And how wonderfully Miodownik has opened this world up in this delightful book. By taking ten ordinary materials you see in one picture, he constructs a marvelous world. Each chapter is named for a property of the material, and each begins from a very simple point. Some talk about the history of the material, others about its chemical structure, and others with a story from his life. Using this as a starting point, he takes you deeper and deeper into this material and what makes it marvelous. For example I had no idea there were 5 or 6 different crystal structures for chocolate and why some of them make better candy than others. The book is full of these delightful bits of

information. Miodownik's style is a wonderful one for the layperson. Although he clearly knows so much more than he's telling you (and no doubt can say it much more technically), you always understand his terms, you don't feel burdened by too many formulas -- he always brings the discussion back to stuff we understand: paper money, movies, tea cups, stainless steel forks. What I love best is how his absolute delight in the materials of this world -- stuff -- comes through. One very tiny warning: Miodownik is British and uses British terms. Most of the time this isn't a problem, you'll know what he means, but once it tripped me up. In his chapter on foam, he talks about "jelly." To an American this is the stuff in jars that you spread on toast. He is not talking about that. He is talking about set gelatins, what in the US we call by the brand name Jell-o. If you figure this out, that chapter makes perfect sense. Thinking jelly as spreadable fruit juice makes the chapter very strange indeed. It's a book that is at once an easily accessible introduction to materials science and an absolutely delightful personal set of reflections.

We have two sons who are currently studying in the fourth- and fifth grades. They are sponges, absolutely ripe for music, math, language and science, especially when it is delivered in as entertaining a form as Mark Miodownik's *Stuff Matters: Exploring the Marvelous Materials That Shape Our Man-Made World*. I picked up the book for myself, having just finished a couple rather dour non-fiction books on politics and race relations. Miodownik's enthusiasm for his subject and his cheery writing style captured my attention from the first chapter. His book is a fascinating read delivered in a conversational style that makes it easy to share with my 11-year old and 10-year old sons. That's a rare treat in this medium, whereas we often share science documentaries on the Discovery Channel or PBS. I'm looking forward to having my sons share the book next with their grandfather next. The book has a charming ability that makes it difficult to look at these materials - glass, concrete, steel and plastic - the same way again. Rating: Five stars

On a related note, I've recently reviewed two illustrated books from DK Publishing that are for the young adult audience. I recommend both *History Year by Year* and *Firearms: An Illustrated History* and would love to see a similar treatment applied to *Stuff Matters: Exploring the Marvelous Materials That Shape Our Man-Made World*. Both of the DK Publishing books are filled with full-color photos and graphics; and large enough to cover a kid's lap. "Firearms: An Illustrated History" is 12 x 10.3 x 1.2 inches and "History Year by Year" is 10.9 x 8.8 x 1 inches. Miodownik's essay on metal, specifically stainless steel, would make a fantastic illustration.

Overall, an enjoyable read. Some detractors: [(1) The sketches and photographs are of low quality.

For example, there is a really bad sketch of an atom on page 149. Also, many of the pictures in the book are unnecessary. For example, in the chapter on paper, there are pictures of a letter, photographic paper, books, receipts, envelopes, paper bags, glossy magazines, tickets, money, and newspapers. (2) The last chapter should have been the first chapter. The author spends the first 10 chapters on steel, paper, concrete, chocolate, foam, plastic, glass, graphite, porcelain, and body implants. Then he spends the last chapter giving a high level view of materials science. Perhaps the author felt that the Introduction (before chapter 1) was enough of a foundation. (3) There are some serious distractions in the book, such as the 26-page screenplay in the chapter on plastic, which struck me as a tedious way to cover the subject. I ended up just skimming it. (4) The book goes back and forth between being folksy / anecdotal and being scientific. Personally, I would have been quite happy with a little less information on the author's personal life, and a little more information (and sketches) on quantum mechanics, atoms, and molecules.] All-in-all, an interesting and informative book, and I recommend reading it, but . . .

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