A Mind For Numbers Summary

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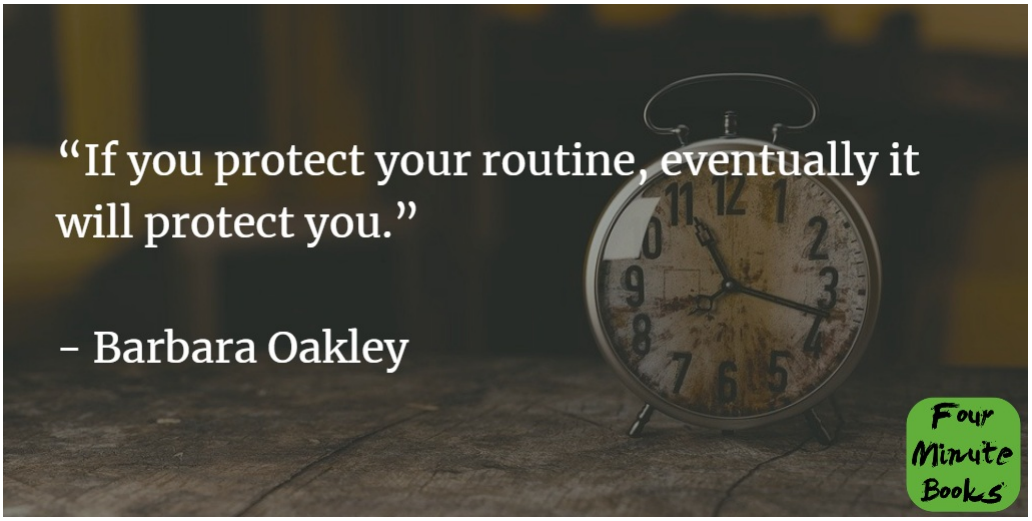
1-Sentence-Summary: *A Mind For Numbers will teach you how to learn math and science more efficiently and get good at them by understanding how your brain absorbs and processes information, even if these subjects don't come naturally to you.*

Read in: 4 minutes

Favorite quote from the author:



Do you like math or hate it? If you're like most people, you might strongly stand on one side of this question. But what if I told you that nobody is "just bad with numbers?" What if anybody, including you, could learn how to be good at math and science?

Well, I'm excited to let you know that you can improve your arithmetic skills no matter how terrible you think you are. I could tell you all day how your mind is not fixed and that you can improve your abilities. But that wouldn't do you any good because I love math and am good with numbers. You need someone who used to hate this subject and failed most of her courses in it.

That's where Barbara Oakley comes in with her book *A Mind for Numbers: How to Excel at Math and Science (Even If You Flunked Algebra)*. Oakley's story is a sort of rags to riches when it comes to math skills. She went from failing her classes to becoming an engineering professor. In this book she'll give you all the tools you need to improve your math and science skills just like she did.

Here are the 3 most helpful lessons I've learned about becoming good with numbers:

1. The first step to improving your analytical abilities is to learn how to use focused thinking, diffuse thinking, and rest.
2. Learn to love and focus on the process rather than always seeking an outcome when trying to master new skills.
3. Taking tests are valuable learning experiences on their own.

Throw out that calculator because after this book you won't need it anymore! Let's go!

Lesson 1: **Learn the skills of focused thinking, diffuse thinking, and rest to enhance your ability to understand complex concepts.**

Would you consider yourself a big picture person or are you more detail-oriented? My wife and I have this conversation all the time. She's better at seeing the forest through the trees, while I usually am too concerned about the details to notice much else.

What we've both discovered is a lesson that's important to learning complex subjects. **You need to use both big-picture, or focused mode and detail-oriented, or diffuse thinking to get good at math and science.**

Using our focused mode happens when we recall information that's tightly woven into our minds already. To multiply, for example, you need to use and combine information you already have about numbers.

Diffuse mode, in contrast, is better for trying to understand a new concept. You don't have anything in your brain to recall yet, so you need to see the big picture to gain new insights.

All this talk of thinking might be making you tired, and that's a good thing! Sleep is the next important step after learning to practice these two ways of looking at problems. Toxins naturally build up in our brains the longer we are awake. Sleep clears these harmful substances out and is thus a crucial component to memory and learning.

Lesson 2: Outcome-based work isn't as powerful as focusing on and enjoying the process of learning.

A couple of years ago I ran my first marathon. I began training for it months before race day and it was still excruciating. Can you imagine how difficult and painful it would be if I *hadn't* prepared well in advance?

Math and science are the same way. You can't become an expert in astrophysics in one night. It's better to think of the process like laying bricks of information. After setting the bricks you need to take time away to let them dry.

Unfortunately, many of us find it too easy to procrastinate even starting our math homework because we see it as boring and difficult. This thinking comes from focusing on the idea that we only want to finish our work.

If we instead look at our goal as "For the next 15 minutes I'll work on this math assignment," it becomes a lot easier to just begin. When we center our mind on only the process of learning, it's easier to just go with the flow and relax. When having a hard time studying I've told myself the reasons I like doing so just for the sake of it. That helped me get my work done much faster, and I had more fun with it, too!

Lesson 3: Although you might hate them, tests are important learning experiences.

I recently became licensed as a Professional Engineer. As part of the process, I had to take a brutal 8-hour, 80-question exam. It was so tough that it took me two tries to finally pass it!

Although this test was one of the most difficult things I've ever done, it also taught me more than most things I've done. I realized after studying the second time that I *felt* like a Professional Engineer. That's something I wouldn't have had the test not been a requirement for me to get my license.

Each test you take is a valuable learning experience that enhances your abilities. One study on this *testing effect*, as it's known, gave two groups a PowerPoint presentation to watch. Participants in one group had to answer a question about what they'd seen every few slides. In the end, this group did better in an overall exam than the control group who didn't have any questions between slides.

It's also important to take tests to practice dealing with anxiety.

While rising cortisol levels sound like a bad thing, learning to cope with it improves our chances of success. Thinking "I'm excited to show how much I know so I feel an adrenaline spike" instead of "I'm scared to take this test" significantly helps you perform better.

A Mind For Numbers Review

I could talk about how much I like *A Mind for Numbers* and this subject all day! Not only do I love the idea that anyone can learn math and science, but I especially enjoy figuring out how humans absorb information and how we can do it more efficiently. This is a great book no matter how much you love or hate arithmetic!

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Who would I recommend the A Mind For Numbers summary to?

The 14-year-old student who is trying hard but still failing their algebra class and wants to improve, the 34-year-old parents of children who are learning addition and subtraction in elementary school, and anyone who is interested in improving their math and science skills.