

How to Read a Physics Book

If you sit down to read a novel, you will start at the beginning and read through to the end. If it's a murder mystery, you might peek ahead to the last page to see who done it, but most people don't (and that's considered cheating). You may go back and read that book again some day, but when you do you'll again start at the beginning and read to the end, because you liked the story, or the way it was told, or both. But this is NOT how you read a physics book.

A physics book does not tell a story (though it may have some historical stories in it), it describes the principles on which physics is based, and it gives you examples of how those principles are applied. You may start with the early chapters and work forward, but you do not have to read every page in order, nor do you even have to read every page. And unlike a novel, you may read the parts you do read more than once.

One question the new physics student must answer is,

Should I read the book before or after the lecture?

The answer I always give to that question is "YES". I'm not trying to be confusing, I'm just using the word "or" in the non-exclusive sense. The two choices are not mutually exclusive, and in fact you should read the book both before and after the lecture.

That sounds like a lot of work, but it's really not, because you don't read it the same way before and after.

Before class you need only skim the assigned reading, to get the big picture and to familiarize yourself technical terms. After all, your teacher is going to explain this stuff in class, so the purpose of reading beforehand is just to get ready for class.

Then, after class, you will want to read those sections again. They should make more sense, now that you have the general idea and once you have been warned by your teacher about the tricky parts. So this should not be as difficult as if you read it in detail the first time. So it's actually easier reading the first time, when you skim, and easier than you'd think the second time, after you know what you are looking for.

After that, you will likely read selected sections of the book yet again, as you are puzzling over homework problems. This is where you may go into the most detail in your reading, but fortunately you only have to do this for certain parts of the book, not the whole chapter.

Many physics text books have all sorts of extra "features" besides the regular text. They have worked "example problems" or conceptual examples, or hints on how to work homework problems. Unless these extra boxes or sidebars look interesting or are easy to understand, you can skip them on your first reading. You can also skip some of them on your second reading. You can come back to the worked examples when you are working

homework problems and get some valuable help. The point is, you don't have to read all of it in your first or even second reading.

In general, when you are skimming the readings before class and something does not make sense, don't worry about it, and don't put any other effort into understanding it. What you just learned is not that particular topic, but that you want to pay attention to that topic in class, and maybe even ask questions about it if the teacher does not clear up your confusion by the end of class.

Reading a physics book is definitely not like reading a novel. But once you learn how it's done, you'll find that you can use your book to prepare for class, and to work homework problems, without having to read everything over and over again deeply, and you will be more organized in how you approach learning a new topic. But just like reading a murder mystery, one hopes that all the mysteries will be solved when you are done with your reading.