

Textbook Reading Strategies

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Even in the "digital age" of *Wikipedia*, *YouTube*, and online classrooms, students are still expected to use textbooks. Some actually find that textbooks take on increasing importance in the digital age, as the books provide organization to content that was provided by an in-person instructor. Also, textbooks provide a comprehensive overview of the current thinking in any field, so scientists frequently read new textbooks to get "up to speed." Scientists sometimes change fields, or their research takes them into unexpected fields, and textbooks are a good way to quickly become familiar with these new and fields. As a result, it is important for science students to develop some skill reading textbooks.

This page introduces a few strategies for reading textbooks that science students can use to more effectively read these important resources. It should be noted that not all of these are appropriate for every section of every textbook, and some individuals find some of these strategies do not help to understand text; practice each, find those that are helpful, ignore the rest (but really try them before ignoring them!).

"First" Reading Strategies

G1) Read introductory section. Textbook authors attempt to both give readers a reason to be interested in the chapter and they attempt to connect chapters to other chapters in the introductory paragraph(s). If you ignore those sections, you may save 2 minutes at first, but waste many more minutes in trying to connect the ideas or trying to figure out why the text is relevant.

G2) Write in the book. Write summaries, questions, bullet points; draw arrows, circle, and underlines. Many find that writing their own summaries works better than highlighting text, as they tend to highlight everything, but composing their own notes forces students to summarize the section. (This advice is difficult for high school students who are using new books that belong to the school as the books are very expensive. If, however, a high school student is using a book that is an older edition, then students are likely to find a copy available from online book retailers for a few dollars. The \$10 spent on your own copy of a textbook to write in may be well worth the expense. Just be sure you purchase the correct edition!)

G3) Read the end of the chapter first. Most textbooks have a summary or review section that contains the big ideas from the chapter. Start with that section, once you have an idea about the big ideas, then read that chapter in detail. (Make sure you do go and read the chapter in detail!)

G4) If the chapter has multiple sections (pretty likely if the book is a science book!), read and understand the section titles first. If there are multiple levels of headings, read and understand that organization prior to starting to read. This will help you understand the structure and organization of the chapter and maybe even get you thinking about connections within the chapter, connections between what you know and what is coming, or prepare you to encounter unfamiliar ideas.

If there is no "contents in detail" available that provide the full outline of the chapter for you, then write the contents as an outline in a sheet of paper.

G5) Combine #2 and #4. Outlines help students understand the organization of information presented in a chapter and the understanding that must happen when composing a summary (writing or typing a summary is important, but composing it is even more important!).

Summarizing Strategies

So you have read the beginning of the chapter, the summary, and you have an outline. Now, what does one put in the summary? Here are a few suggestions that are particularly useful for science texts:

S1) Write a one-sentence summary that follows this form: " **tells us..., so that meant....**" Fill in the first blank with the name of a scientist or researcher whose work is being presented. Replace the first ellipsis with a description of what was studied and the second ellipsis with a statement of the problem the scientist was trying to solve.

S2) Deconstruct an equation. Frequently science present equations. Deconstruct equations with the following summary:

- > What is the equation's name and what does it show?
- > Write the equation and identify the variables.
- > Identify the units of the answer.

S3) Sketch a graph that shows the relationships described in the paragraph.

S4) Draw a picture of what was described.

S5) "I know..., but I wonder...." Fill in the ellipses with your understanding and unanswered questions.

S6) Bullet it. What are the "things" described... identify them, but don't worry about defining them.

S7) So what? Write a sentence or two that answers this perennial question posed by students.

S8) Factor diagram. Science often deals with describing the factors that are known to affect a phenomena. Use arrows to show how these factors interact (use up arrows, down arrows, thick and thin arrows as necessary).

