



## 1.2 Reading Strategies (SQ3R)



Students often read a science textbook as if they were watching a movie—they just sit there and expect to take it all in. Actually, reading a science book is more like playing a video game. You have to interact with it! This skill builder will teach you active strategies that will improve your reading and study skills. Remember—just like in video game playing—the more you practice these strategies, the more skilled you will become.

The **SQ3R** active reading method was developed in 1941 by Francis Robinson to help his students get the most out of their textbooks. Using the SQ3R method will help you interact with your text, so that you understand and remember what you read. “SQ3R” stands for:

Survey  
Question  
Read  
Recite  
Review

Your student text has many features to help you organize your reading. These features are highlighted in *Chapter 1: Measurement*, found on pages 3–32 of your student text. Open your text to those pages so that you can see the features for yourself.

### Survey the chapter first.

- Skim the *introduction* on the first page of every chapter. Notice the *key questions*. The key questions are thought-provoking and designed to spark your interest in the chapter. See if you can answer these questions after you have read the entire chapter.
- You will find *vocabulary* words with their definitions in blue boxes on the right side of each page. Vocabulary words will be scattered throughout the chapter. Write down any vocabulary words that are unfamiliar to you to help you recognize them later.
- Next, skim the chapter to get an overview. Notice the *section numbers* and *titles*. These divide the chapter into major topics. The *subheadings* in each section outline important points. Vocabulary words are highlighted in bold blue type. *Solving Problems* pages provide step-by-step examples to help you learn to use mathematical formulas. Tables, charts, and figures summarize important information.
- Read the *section review* questions at the end of each section. The questions help you identify what you are expected to know when you finish your reading. You will also find *Challenge*, *Solve It*, *Study Skills*, *Journal*, *Science Fact*, and/or *Technology* boxes scattered throughout each section. These boxes provide you with an interesting way to learn more about information in the section.
- Carefully read the *Chapter Assessment* at the end of the chapter to see what kinds of questions you will need to be able to answer. Notice that it is divided into four subtitles: *Vocabulary*, *Concepts*, *Problems*, and *Applying Your Knowledge*. Each set is listed by chapter section.



**Question what you see. Turn headings into questions.**

- Look at each of the section headings and subheadings, found at the tops of pages in your text. Change each heading to a question by using words such as who, what, when, where, why, and how. For example, **Section 1.1: Measurements** could become *What measurements will I need to make in physical science?* The subheading **Two common measurement systems** could become *What are two common measurement systems?* Write down each question and try to answer it. Doing this will help you pinpoint what you already know and what you need to learn as you read.

**Read and look for answers to the questions you wrote.**

- Pay special attention to the *sidenotes* in the left margin of each page. For example, under the Section 1.3 subheading **Converting between English and SI units**, the sidenotes are: **The problem of multiple units** and **Comparing English and SI units**. These phrases and short sentences are designed to guide you to the main idea of each paragraph. Also, note the sidebars and illustrations on the right side of the page with additional explanations and concepts. For example, the target diagrams in **Figure 1.4** will help you understand the terms *accuracy*, *precision*, and *resolution*.
- Slow your reading pace when you come to a difficult paragraph. Read difficult paragraphs out loud. Copy a confusing sentence onto paper. These methods force you to slow down and allow you time to think about what the author is saying.

**Recite concepts out loud.**

- This step may seem strange at first, because you are asked to talk to yourself! But studies show that saying concepts out loud can actually help you to record them in your long-term memory.
- At the end of each section, stop reading. Ask yourself each of the questions you wrote in step two on the previous page. Answer each question out loud, in your own words. Imagine that you are explaining the concept to someone who hasn't read the text.
- You may find it helpful to write down your answers. By using your senses of seeing, hearing, and touch (when you write), you create more memory paths in your brain.

**Review it all.**

- Once you have finished the entire chapter, go back and answer all of the questions that you wrote for each section. If you can't remember the answer, go back and reread that portion of the text. Recite and write the answer again.
- Next, reread the key questions at the beginning of the chapter. Can you answer these?
- Complete the section reviews and the chapter assessment. Use the glossary and index at the back of the book to help you locate specific definitions.

**PRACTICE** 

The SQ3R method may seem time-consuming, but it works! With practice, you will learn to recognize the important concepts quickly.

Active reading helps you learn and remember what you have read, so you will have less to re-learn as you study for quizzes and tests.