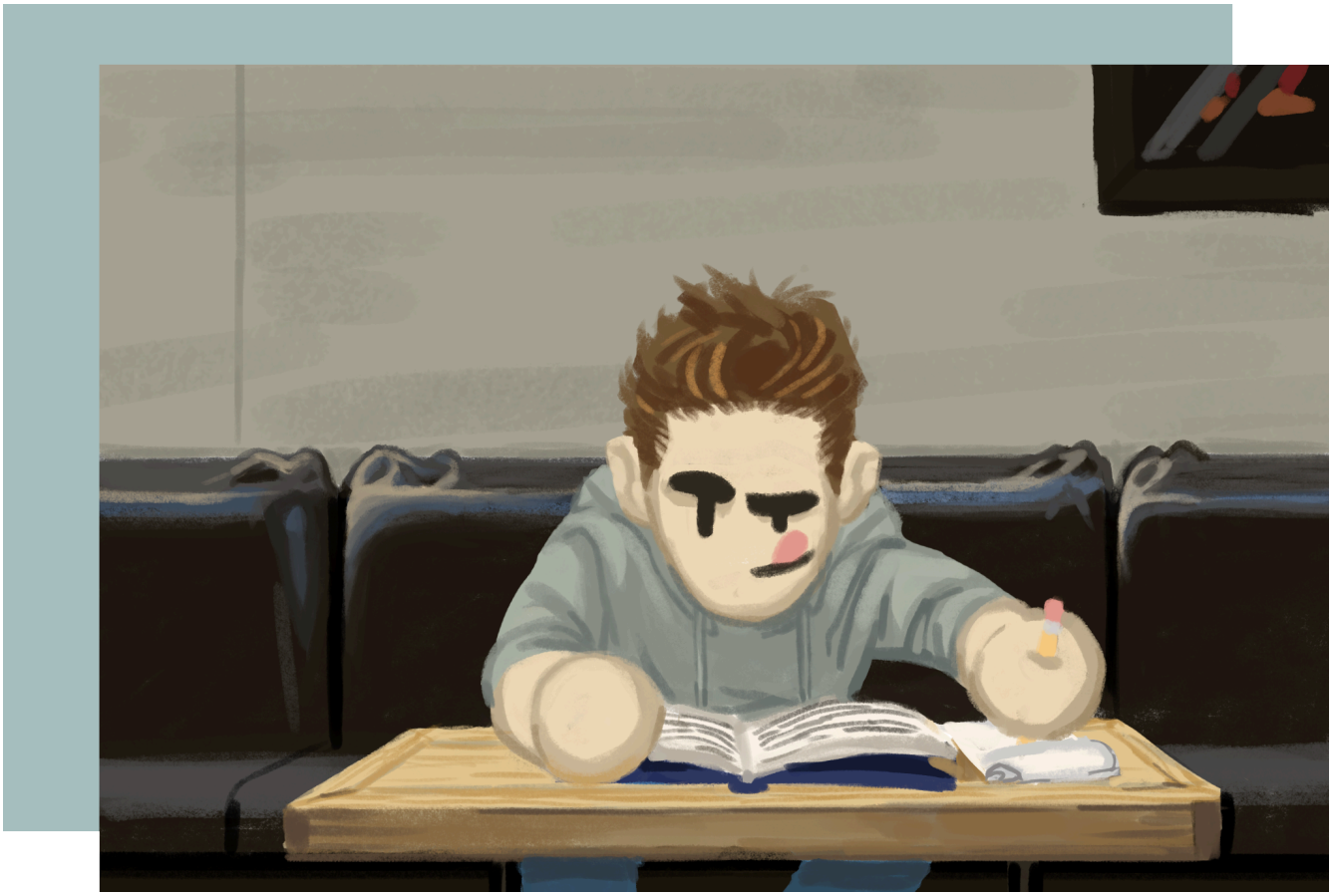
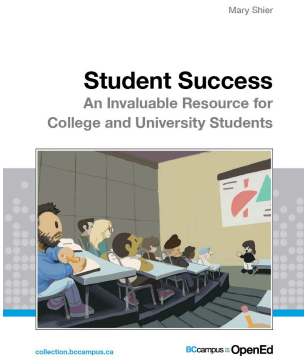
Chapter 5 Study Skills



Mary Shier



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Note that page numbers reflect the page numbers in the full textbook.

The full text can be found at **opentextbc.ca/studentsuccess**, where it can be read online, downloaded, printed, or ordered.

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> Shier, M. (2020). *Student Success*. Victoria, B.C.: BCcampus. Retrieved from https://opentextbc.ca/studentsuccess/

Introduction

Good study habits can make all the difference when it comes to student success. Many adult learners struggle to learn and get good grades. They often think they are “bad students”. Often they just need to learn some effective study habits. But instead, students often start their courses using the same old study habits they did in school even when they clearly didn’t work for them back then. Einstein says, “The definition of insanity is doing the same thing over and over and expecting a different result.” If it didn’t work before, why would you think it would work now? Maybe it is time to develop some new learning study habits.

Note: People with learning disabilities may need more than working on study habits (depending on the level of disability). If you think you may have a learning disability and would like to be assessed, contact Student Services at your college to inquire about the assessment process and supports available to you.

Learning Objectives

In this chapter on “Study Skills,” students will:

- Create a learning environment conducive to concentration and focused study.
- Employ study techniques *throughout the term* to prepare for quizzes, tests, and exams.
- Develop critical reading skills.
- Navigate textbooks by recognizing and emphasizing key concepts, highlighted sections, chapter summaries, glossaries, and indexes.
- Utilize a variety of memory techniques and strategies.
- Practice the skills necessary for successful group study experiences.
- Apply effective note-taking strategies.
- Implement effective study habits.

5.1 Learning Environment

Now that you've worked up an attitude for success and are feeling motivated, it's time to get organized. You need to organize both your space and your time. This is an essential part of good study skills. It starts with a good studying environment.

Tips for Effective, Individual Study Spaces

Most students more or less take what they can get when it comes to study areas. Schools usually offer a variety of nooks and crannies for students to hunker down and get their assignments done. The school library is a good (and quiet) place. Many common areas elsewhere on campus have tables, chairs, couches, and lounges to accommodate learners. But most students end up doing the majority of their out-of-class work at home.

A messy desk might not be the best for studying.

Home environments may be limited in terms of providing all of the recommended aspects of a good study space, but many of the recommendations can be either implemented or adapted from what a student has on hand or what can be improvised no matter what environment they are living in. Elements conducive to a more effective study/homework experience include such things as good lighting, ample supplies, comfortable seating, adequate space, organization, and personalizing the study area to add a touch of inspiration and motivation.

Space is important for many reasons—some obvious, some less so. People's moods, attitudes, and levels of work productivity change in different spaces. Learning to use space to your own advantage helps get you off to a good start in your studies. Here are a few of the ways space matters:

- **Everyone needs their own space.** This may seem simple, but everyone needs some physical area, regardless of size, that is really their own—even if it's only a small part of a shared space. Within your own space, you generally feel more secure and in control.
- **Physical space reinforces habits.** For example, using your bed primarily for sleeping makes it easier to fall asleep there than elsewhere. It is a bad choice for studying as you are in the habit of relaxing and going to sleep there, so it's harder to stay alert and focused.
- **Different places create different moods.** While this may seem obvious, students don't always use places to their best advantage. One place may be bright and full of energy, with happy students passing through and enjoying themselves—a place that puts you in a good

mood. But that may actually make it more difficult to concentrate on your studying. Yet the opposite—a totally quiet, austere place devoid of color and sound and pleasant decorations—can be just as unproductive if it makes you associate studying with something unpleasant. You will need to discover what space works best for you and then let that space reinforce good study habits.

Use Space to Your Advantage and to Avoid Distractions

Begin by analyzing your needs, preferences, and past problems with places for studying. Where do you usually study? What are the best things about that place for studying? What distractions are most likely to occur there?

The goal is to find, or create, the best place for studying, and then to use it regularly so that studying there becomes a good habit.

- **Choose a place you can associate with studying.** Make sure it's not a place already associated with other activities (eating, watching television, sleeping, etc.). Over time, the more often you study in this space, the stronger will be its association with studying, so that eventually you'll be completely focused as soon as you reach that place and begin.
- **Your study area should be available whenever you need it.** If you want to use your home, apartment, or dorm room but you never know if another person may be there and possibly distract you, then it's probably better to look for another place, such as a study lounge or an area in the library. Look for locations open at the hours when you may be studying. You may also need two study spaces—one in or near where you live, another on campus. Sometimes you have to make do depending on circumstances. For example, you have an hour free between two classes, and your regular study areas are too far away to use for only an hour. Look for a convenient study place nearby such as a cafeteria or student lounge.

Choose a pleasant, quiet place for studying, such as the school library.

- **Your study space should meet your study needs.** An open desk or table surface usually works best for writing, and you'll tire quickly if you try to write notes sitting in an easy chair (which might also make you sleepy). You need good light for reading, to avoid tiring from eyestrain. If you use a laptop for writing notes or reading and researching, you need a power outlet so you don't have to stop when your battery runs out.
- **Your study space should meet your psychological needs.** Some students may need total silence with absolutely no visual distractions; they may find a perfect study carrel hidden away on the fifth floor in the library. Other students may be unable to concentrate for long without looking up from reading and momentarily letting their eyes move over a pleasant scene. Some students may find it easier to stay motivated when surrounded by other students also studying; they may find an open space in the library or a study lounge with many tables spread out over an area. Experiment to find the setting that works best for you—and remember that the more often you use *this same space*, the more comfortable and effective your studying will become.
- **You may need the support of others to maintain your study space.** Students living at home, whether with a spouse and children or with their parents, often need the support of family members to maintain an effective study space. The kitchen table probably isn't best if others pass by frequently. Be creative, if necessary, and set up a card table in a quiet corner of your bedroom or elsewhere to avoid interruptions. Put a "do not disturb" sign on your door.
- **Keep your space organized and free of distractions.** You want to prevent sudden impulses to neaten up the area (when you should be studying), do laundry, wash dishes, and so on. Unplug a nearby telephone, turn off your cell phone, and use your computer only as needed for studying. If your email or message program pops up a notice every time an email or message arrives, turn off your notifications, turn off your Wi-Fi, or detach the network cable to prevent those intrusions.

- **Plan for breaks.** Everyone needs to take a break occasionally when studying. Think about the space you're in and how to use it when you need a break. If in your home, stop and do a few exercises to get your blood flowing. If in the library, take a walk up a couple flights of stairs and around the stacks before returning to your study area.
- **Prepare for human interruptions.** Even if you hide in the library to study, there's a chance a friend may happen by. At home with family members or in a dorm room or common space, the odds increase greatly. Have a plan ready in case someone pops in and asks you to join them in some fun activity. Know when you plan to finish your studying so that you can make a plan for later—or for tomorrow at a set time.

The Distractions of Technology

Multi-tasking () is the term commonly used for being engaged in two or more different activities at the same time, usually referring to activities using devices such as cell phones, smartphones, computers, and so on. Many people claim to be able to do as many as four or five things simultaneously, such as writing an email while responding to an instant message (IM) and reading a tweet, all while watching a video on their computer monitor or talking on the phone. Many people who have grown up with computers consider this kind of multi-tasking a normal way to get things done, including studying. Even people in business sometimes speak of multi-tasking as an essential component of today's fast-paced world.

Video: "Why the Human Brain Can't Multitask" (length 2:39)

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://opentextbc.ca/studentsuccess/?p=128#oembed-1 (#oembed-1)

It is true that *some* things can be attended to while you're doing something else, such as checking e-mail while you watch television news—but only when none of those things demands your full attention. You can concentrate 80 percent on the email, for example, while 20 percent of your attention is listening for something on the news that catches your attention. Then you turn to the television for a minute, watch that segment, and go back to the email. But you're not actually watching the television *at the same time that* you're composing the email—you're rapidly going back and forth. In reality, the mind can focus only on one thing at any given moment. Even things that don't require much thinking are severely impacted by multi-tasking, such as driving while talking on a cell phone or texting. An astonishing number of people end up in the emergency room from just trying to walk down the sidewalk while texting; it is a common occurrence for people to walk into a pole or parked car while multi-tasking.

"Okay," you might be thinking, "why should it matter if I write my paper first and then answer emails or do them back and forth at the same time?" **It actually takes you longer to do two or more things at the same time than if you do them separately**—at least with anything that you actually have to focus on, such as studying. That's true because each time you go back to studying after looking away to a message or tweet, it takes time for your mind to shift gears to get back to where you were. Every time your attention shifts, add up some more "downtime"—and pretty soon it's evident that multi-tasking is costing you a lot more time than you think. And that's assuming that your mind *does* fully shift back to where you were every time, without losing your train of thought or forgetting an important detail. It doesn't always.

The other problem with multi-tasking is the effect it can have on the attention span—and even on how the brain works. Research has shown that in people who constantly shift their attention from one thing to another in short bursts, the brain forms patterns that make it more difficult to keep sustained attention on any one thing. So when you really do need to concentrate for a while on one thing, such as when studying for a big test, it becomes more difficult to do even if you're not multi-tasking at that time. It's as if your mind makes a habit of wandering from one thing to another and then can't stop.

So stay away from multi-tasking whenever you have something important to do, like studying. If it's already a habit for you, don't let it become worse. Manipulate your study space to prevent the temptations altogether. Turn your computer off—or shut down email and messaging programs if you need the computer for studying. Turn your cell phone off—if you just tell yourself not to answer it but still glance at it each time to see who sent or left a message, you're still losing your studying momentum and have to start over again. For those who are really addicted to technology (you know who you are!), go to the library and don't take your laptop or cell phone.

In Chapter 7 Time Management, effective time management strategies are discussed, including scheduling breaks in your study periods, usually for a few minutes every hour. If you're really hooked on checking for messages, plan to do that at scheduled times.

What about listening to music while studying? Some don't consider that multi-tasking, and many students say they can listen to music without it affecting their studying. Studies are inconclusive about the positive or negative effects of music on people's ability to concentrate, probably because so many different factors are involved. But there's a huge difference between listening to your favourite CD and spontaneously singing along with some of the songs and enjoying soft background music that enhances your study space the same way as good lighting and pleasant decor. Some people can study better with low-volume instrumental music that relaxes them and does not intrude on their thinking, while others can concentrate only in silence. And some are so used to being immersed in music and the sounds of life that they find *total* silence more distracting—such people can often study well in places where people are moving around. The key thing is to be honest with yourself: if you're *actively* listening to music while you're studying, then you're likely not studying as well as you could be. It will take you longer and lead to less successful results.

Family and Roommate Issues

Sometimes going to the library or elsewhere is not practical for studying, and you have to find a way to cope in a shared space.

Try to find a learning environment free of distractions.

Part of the solution is time management. Agree with others on certain times that will be reserved for studying; agree to keep the place quiet, not to have guests visiting, and to prevent other distractions. These arrangements can be made with a roommate, spouse, and older children. If there are younger children in your household and you have child-care responsibility, it's usually more complicated. You may have to schedule your studying during their nap time or find quiet activities for them to enjoy while you study. Try to spend some time with your kids before you study, so they don't feel like you're ignoring them.

The key is to plan ahead. You don't want to find yourself, the night before an exam, in a place that offers no space for studying.

Finally, accept that sometimes you'll just have to say no. If your roommate or a friend often tries to engage you in conversation or suggests doing something else when you need to study, just say no. Learn to be firm but polite as you explain that you just *really* have to get your work done first. Students who live at home may also have to learn how to say no to parents or family members—just be sure to explain the importance of the studying you need to do. Remember, you can't be everything to everyone all the time.

Key Takeaways

- Where you study can have a huge impact on the effectiveness of your study efforts. Choose and organize your space to your advantage.
- How you control your study space can help you prevent distractions, especially those caused by other people or your personal technology.
- Attempting to multi-task while studying diminishes the quality of your study time and results in a loss of time.
- Control your study space to prevent or manage potential interruptions from family members or roommates.

Exercise: Learning Environment

1. For each of the following statements, circle T for true or F for false:

Your bed is usually a good place to study if you can keep the room quiet.	T	F
To study well, use the most drab, boring place you can find.	T	F
Having a designated study area means you can set up an organized space with all of your resources that provides a consistent place to study.	T	F
To maintain a clear focus while studying, limit the time you spend checking for email and text messages to every ten minutes or so. Put your cell phone on vibrate mode and keep it in your pocket where you can more easily ignore it.	T	F
It's OK to have the television or radio on while you study as long as you don't give it your full attention.	T	F
The key to avoiding interruptions and distractions from family members or roommates is to plan ahead for when and where you'll study.	T	F

2. Class discussion or online forum discussion: Share stories about distractions caused by roommates and others that you and other students have experienced. Brainstorm together how to handle similar situations next time they arise.

Exercise: Learning Environment – Home Study Area

1. Describe your current study area at home—the good, the bad, and the ugly. Be thorough.
2. List as many ways you think you can realistically improve, change, or start from scratch your study area. Remember, you might not have the advantage of a whole room, or even a corner of a room, but there are still some changes you can make to create a more effective study environment.

References

Levitin, D. (2015, January 18). Why the modern world is bad for your brain. *The Guardian*. Retrieved from https://www.theguardian.com/science/2015/jan/18/modern-world-bad-for-brain-daniel-j-levitin-organized-mind-information-overload

Doraiswamy, S. (2012, October 8). Does music help you study? Retrieved from http://www.mindthesciencegap.org/2012/10/08/does-music-help-you-study/.

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5.2 Critical Reading Skills

Reading for joy and learning.

Learning to read critically is an important part of developing good study habits, and ultimately strong reading skills will enhance almost every area of your life.

Most students entering college have not yet dealt with the level of difficulty involved in reading–and comprehending–scholarly textbooks and articles. The challenge may even surprise some who have pretty good reading and comprehension skills so far. Other students for whom reading has mostly consisted of social media, texts, forum chat rooms, and emails, find they are intimidated by the sheer amount of reading there is in college classes.

What is Reading Comprehension?

Reading comprehension is defined as the level of understanding of a message. In other words, how well do you understand what you read? This understanding comes from the interaction between the words that are written and how they trigger knowledge outside the written message. Comprehension is a “creative, multi-faceted process” dependent upon four language skills: phonology, syntax, semantics, and pragmatics. Proficient reading depends on the ability to recognize words quickly and effortlessly. It is also determined by an individual’s cognitive development, which is “the construction of thought processes”. Reading comprehension involves both the ability to decode (figure out) words (i.e. know what the words are) and also the ability to make meaning of the words strung together (comprehension) Some people learn through education or instruction and others through direct experiences.

There are specific traits that determine how successfully an individual will comprehend text, including prior knowledge about the subject, well-developed language, and the ability to make inferences. Having the skill to monitor comprehension is a factor: “Why is this important?” and “Do I need to read the entire text?” are examples. Another trait is the ability to be self-correcting, which allows for solutions to comprehension challenges.

Vocabulary

Reading comprehension and vocabulary are inextricably linked. The ability to decode or identify and pronounce words is self-evidently important, but knowing what the words mean has a major and direct effect on knowing what any specific passage means. Students with a smaller vocabulary than other students comprehend less of what they read, and it has been suggested that the most impactful way to improve comprehension is to improve vocabulary.

Most words are learned gradually through a wide variety of environments: television, books, and conversations. Some words are more complex and difficult to learn, such as homonyms, words that have multiple meanings and those with figurative meanings, like idioms, similes, and metaphors.

Reciprocal Teaching

Reciprocal teaching requires students to predict, summarize, clarify, and ask questions for sections of a text. The use of strategies like summarizing after each paragraph have come to be seen as effective strategies for building students' comprehension. The idea is that students will develop stronger reading comprehension skills on their own if the teacher gives them explicit mental tools for unpacking text.

Instructional Conversations

"Instructional conversations", or comprehension through discussion, creates higher-level thinking opportunities for students by promoting critical and aesthetic thinking about the text. There are several types of questions to focus on: remembering; testing understanding; application or solving; synthesis or creating; and evaluation and judging. It is helpful to use these types of questions through "think-alouds" before, during, and after reading a text. When a student can relate a passage to an experience, another book, or other facts about the world, they are "making a connection". Making connections helps students understand the author's purpose in a fiction or non-fiction story.

Instructional conversations create higher-level thinking opportunities for students.

Text Factors

There are factors that, once discerned, make it easier for the reader to understand the written text. One is the genre, like folktales, historical fiction, biographies or poetry. Each genre has its own characteristics for text structure that, once understood, help the reader comprehend it. A story is composed of a plot, characters, setting, point of view, and theme. Informational books provide real world knowledge for students and have unique features such as: headings, maps, vocabulary, and an index. Poems are written in different forms and the most commonly used are: rhymed verse, haiku, free verse, and narratives. Poetry uses devices such as: alliteration, repetition, rhyme, metaphors, and similes. Students who are familiar with genres, organizational patterns, and text features in books they read are better able to create those text factors in their own writing.

The SQ3R Strategy

The SQ3R method has been a popular method of reading to learn. Textbooks require different reading methods than you might use for a novel, magazine, or website. When you approach a textbook, you are using it as a tool to learn the material that you need to know for your course. To achieve your aims, you will want to read with a purpose. One method for reading purposefully is called SQ3R. The acronym SQ3R reminds you of the elements of this reading method – Survey, Question, Read, Recite, Review – that will help you become a more effective reader.

Survey

Before diving in to read the chapter – look over some of the key aspects.

- Survey the title: Think about what you may already know about that topic.
- Survey the introduction: It gives you an idea about how the chapter is organized, and what you will be learning. If your chapter includes a list of Learning Objectives, you will want to pay particular attention to these. The Learning Objectives outline the key content you will want to master as a result of your reading.
- Survey anything in bold: Subtitles are labels. Other bolded items may be definitions that you will need to know.
- Survey the pictures, charts and graphs: Glance at these to pick out things that seem interesting or informative.
- Survey the summary at the end: This will review and give you the key points in the chapter.
- Survey the questions at the end of the chapter: These will help focus your attention on the main points.
- Survey your course syllabus/course presentation and see what topics the instructor is focusing on.

Question

When you have completed your survey, you will begin reading, focusing especially on items that you identified as important when you survey. Think of questions you would like to see answered in the chapter. Think of the 5 Ws and H questions. Think of "Who, What, Where, When, Why, and How" questions for each subtitle or definition (you can do this as you progress through the reading). These questions will become the headings in your notes.

Read

Read the chapter. Read to answer the questions you have created. Reread captions under pictures, graphs, and visuals. Note all underlined, italicized, and bolded words or phrases. Stop and reread parts that aren't clear. Once you have found the key information needed, move to the next step.

Recite

Recite the answer to your question out loud. Do this as if you are explaining to a study partner. Better yet, actually explain it to a study partner, family member, or friend who is interested in supporting you. Explaining it to someone else helps you understand it better yourself.

- After reciting, write this information down.
- Repeat this step for each question that you created.

Review

Stand back and look at the chapter as a whole.

- How do the ideas and facts you learned from each subsection fit together?
- Review your notes to be sure they make sense to you.

Exercise: The SQ3R Reading Method

Open your textbook to the chapter you are reading and complete the steps below. Download this SQ3R printable worksheet [PDF] for a template to guide you as you read and take notes.

SURVEY: After surveying the chapter, what do you think it will be about?

QUESTION: Turn the first subtitle into a question.

READ: The section to answer the question.

RECITE: Answer the question in your words. (Repeat for the rest of the chapter.)

REVIEW: After reading the chapter, what new things did you learn?

KWL Reading Strategy

KWL is a method that can guide you in reading and understanding a text. You can do it working alone, but discussions definitely help. It is composed of only three stages which can be reflected on a worksheet of three columns with the three letters:

What we **Know**	what we **Want to know**	what we **Learned**

K stands for Know

Think first about what you already know about the topic before reading and jot it down in the first column, marked K. Discuss with others if possible.

W stands for Want to know

In the W column list the things you want to learn about the topic. Record questions, thinking of the 5 Ws and H questions. These questions will help you focus your attention during reading.

L stands for Learned

The final stage is to answer your questions, as well as to list what new information you have learned. You can do this either while reading or after you have finished.

Exercise: KWL Reading Method

Try it!

Try using the KWL method on a simple task that you would like to know more about. For example, how to make a great cup of coffee, how to make a delicious margarita, information about a medical issue someone you know has been diagnosed with, tips for painting a bedroom… anything you like.

The Reading Apprenticeship (RA) Approach to Comprehension

A method called Reading Apprenticeship is based on the premise that people who have become expert readers can assist learners by modeling what they have learned to do. The idea is that a more proficient reader is present to support the beginner, engaging the beginner in the activity and calling attention to often overlooked or hidden strategies.

This strategy takes a metacognitive approach to comprehension, utilizing various strategies readers may already know they know how to do, then adding more. For example, most readers have learned to make predictions, ask questions concerning meanings (“I wonder about…”), visualize a scene being described, associate the material being read to some other material, and, at the end, summarize the material. By reading together, the more experienced reader walks the beginner through the process by leading them through similar processes.

Now review and affirm important comprehension skills you already possess and complete the exercise below.

Exercise: Reading Apprenticeship Approach

Go back through the excerpt above on reading comprehension and this time, write marginal notes where you used any of the comprehension tools listed below:

- **Predicting** – guessing what the author would write next.
- **Asking questions** of the material such as, "I wonder about," "Could this mean?"
- **Visualizing** – trying to picture it in your mind.
- **Connecting** this material to something else you have learned – "It's like…"
- **Noting** where you think you might need to read something over again for comprehension. This is important! It's not a weakness to read things over several times to understand them!
- **Summarizing** – excellent for testing to see if you really understood the main point of the reading.

Key Takeaways

- Being able to read a section of writing doesn't necessarily mean you understand it well.
- There are key strategies to increase reading comprehension.
- Practices such as discussion, reciprocal teaching, questioning, and summarizing help to increase understanding.
- Taking into account text factors such as genres, literary features, organizational patterns, and text features such as headings, maps, charts, and indexes – all aid comprehension.
- The SQ3R reading method uses survey, question, read, recite, and review as a structure to deepen understanding.
- The KWL reading method uses 3 stages: what you know, what you want to know, and what you learned.
- The Reading Apprenticeship approach uses a mentorship model where a strong reader helps a weaker reader gain useful reading strategies.
- Try some of these reading approaches and see if one works well for you. These strategies help to engage you and make you active in the reading process rather than just be a passive receiver of information. This helps you to remember and understand.

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5.3 Navigate Textbooks

Often when presented with the textbook for a course, you may find it a little overwhelming. The textbook can be large with a lot of information in it. Students can feel a little defeated even before they start. They may have questions like, “Will I need to know everything in this book?” or “Will I be able to understand it?” or even “When will I have time to read all this?” Rest assured, it is likely much better than it might seem at first. Often you are only asked to read and deal with certain parts of the textbook, as opposed to the whole thing, so make sure to read your instructions carefully. Many students have ended up reading chapters that weren’t required for the course.

Furthermore, there are many strategies that are helpful for navigating your textbook. Knowing the layout of your text can help you locate information easily, identify important information, and aid in reviewing and summarizing material. Here are some useful tips.

Front and Back Matter

Before diving into every line of text in a textbook reading assignment, it is helpful (and saves time) to find out first what resources the entire book has to offer you. Then, as those chapter readings are assigned, it helps to first skim read them for the big picture meaning.

The first exercise in this chapter will help you find all the resources in your textbook, and some textbooks have a lot more help in the front matter and back matter of the text than you may realize. One student who, when given this exercise to use on any textbook he had with him, picked his math book. He was at that time re-taking that math class because he had failed it the term before. As he did the exercise, he realized the back matter of the book included an answer key for half of the problems for every exercise. “Had I known this last term,” he said, “I would have passed!” He would have been able to check his answers and see when he didn’t understand a concept. See if you, too, find something useful in your textbook that perhaps you didn’t know was there, either.

The exercises in this chapter cover strategies for skim-reading specific chapters and a strategy for getting the most out of graphics included in textbooks.

Exercise: Front and Back Matter of a Textbook

Here is a list of several kinds of resources typically in the front of a textbook, known as “front matter,” and a list of typical “back matter” resources. For one of your textbooks, put a check mark next to the front and back matter features it includes then answer the two questions below.
Textbook title_____

FRONT MATTER

___Table of Contents

___Preface

___Introduction

___To the Teacher

___To the Student

___Other (list, here): _____

BACK MATTER

___Glossary of Terms

___Index of subjects

___Answer Keys

___Additional Exercises

___Additional Readings

___Tables, graphs, charts

___Maps

___Other (list, here): _____

Answer the following questions:

1. Were there any surprises for you?
2. How can you use the front and back matter in your text to help you with your studies? (3 or 4 sentences)

Skim-Reading Textbook Chapters

Before doing a detailed reading of a textbook chapter, get the big picture by following these steps:

- Similar to reading the Table of Contents for the entire book, read the Introduction or Chapter Overview, whichever the textbook features, for the main ideas and how they are divided.
- Read the headings and sub-headings.
- Note the graphics (charts, tables, illustrations, etc.).
- Read the first one or two sentences in the paragraphs (the paragraph topic is sometimes covered in more than one sentence).
- Read the last sentence in each paragraph, which might be a paragraph summary.
- Read the summary of the entire chapter, if given.
  Read any sentence with boldface or italicized words or word groups in it (usually key ideas or technical terms).
- Stop when necessary if you come across a complicated idea or topic and take a little more time to skim it until you understand it.
- Skim the study questions, too. They will help you focus on key points.

Exercise: Skimming

Using the recommendations on how to skim through textbook chapters, do so with a textbook chapter of your choice. When you are finished, close the book and write down as many of the main ideas of this chapter as you can remember by skim reading it. Try not to look back. When finished, check your work to make sure you have transcribed the information correctly.

Reading Graphics

Graphics provide a visual way of conveying information. Listed below are various types of data found on most graphics, whether a pie chart, bar graph, line chart, or other type.

(https://opentextbc.ca/accessibilitytoolkit/wp-content/uploads/sites/695/2019/04/statistic-1564428_640.png)

Graphics convey information visually.

The key to comprehending graphics and using them to get more meaning from a textbook chapter or an article, or to answer study questions, is to pay close attention to the typical elements of the graphic. A graphic may include the following elements:

- Title
- Captions
- Legend
- Axis information (vertical information, or “Y” data, and horizontal information, or “X” data)
- Publication date (important for the most current information)
- Publisher (important for credibility)
- Labels
- Color (used to differentiate and compare data)
- Size (also used to represent comparisons)
- Spatial positions (helps for comparing and contrasting)
- Patterns represented by the content, itself
- Trends that appear more evident when viewing the visual representation of the data

Anatomy of a Textbook

Good textbooks are designed to help you learn, not just to present information. They differ from other types of academic publications intended to present research findings, advance new ideas, or deeply examine a specific subject. Textbooks have many features worth exploring because they can help you understand your reading better and learn more effectively. In your textbooks, look for the elements listed in the table below.

Textbook Feature	**What It Is**	**Why You Might Find It Helpful**
Preface or Introduction	A section at the beginning of a book in which the author or editor outlines its purpose and scope, acknowledges individuals who helped prepare the book, and perhaps outlines the features of the book.	You will gain perspective on the author's point of view, what the author considers important. If the preface is written with the student in mind, it will also give you guidance on how to "use" the textbook and its features.
Foreword	A section at the beginning of the book, often written by an expert in the subject matter (different from the author) endorsing the author's work and explaining why the work is significant.	A foreword will give you an idea about what makes this book different from others in the field. It may provide hints as to why your instructor selected the book for your course.
Author Profile	A short biography of the author illustrating the author's credibility in the subject matter.	This will help you understand the author's perspective and what the author considers important. It will also give you an idea about the author's credibility on the topic.
Table of Contents	A listing of all the chapters in the book and, in most cases, primary sections within chapters.	The table of contents is an outline of the entire book. It will be very helpful in establishing links among the text, the course objectives, and the syllabus. It's also a quick reference to finding specific chapters.
Chapter Preview or Learning Objectives	A section at the beginning of each chapter in which the author outlines what will be covered in the chapter and what the student should expect to know or be able to do at the end of the chapter.	These sections are invaluable for determining what you should pay special attention to. Be sure to compare these outcomes with the objectives stated in the course syllabus. They are also a good reference for review before a test.
Introduction	The first paragraph(s) of a chapter, which states the chapter's objectives and key themes. An introduction is also common at the beginning of primary chapter sections.	Introductions to chapters or sections are "must reads" because they give you a road map to the material you are about to read, pointing you to what is truly important in the chapter or section.

Textbook Feature	What It Is	Why You Might Find It Helpful
Applied Practice Elements	Exercises, activities, or drills designed to let students apply their knowledge gained from the reading. Some of these features may be presented via websites designed to supplement the text.	These features provide you with a great way to confirm your understanding of the material. If you have trouble with them, you should go back and reread the section. They also have the additional benefit of improving your recall of the material.
Chapter Summary	A section at the end of a chapter that confirms key ideas presented in the chapter.	It is a good idea to read this section before you read the body of the chapter. It will help you strategize about where you should invest your reading effort. It is also invaluable when reviewing for a test.
Review Material	A section at the end of the chapter that includes additional applied practice exercises, review questions, and suggestions for further reading.	The review questions will help you confirm your understanding of the material.
Glossary of Terms	Textbooks often highlight or bold new terms. Glossaries are usually at the back of textbooks and give definitions and explanations of important terms in the text.	Many students overlook the usefulness of glossaries. They aid comprehension when you are reading and come across terms you don't know or don't remember the meaning of. They are also extremely useful when doing assignments and the question is unclear or you are looking for clues in order to proceed.
Index	Located in the back matter of a text, it gives page numbers that content is located in.	This is probably one of the most useful, yet most underused section of a text. Anytime you need to look up a concept in the text, don't spend wasted time flipping through the text looking for a section you're sure you'll recognize. Go straight to the index and it will lead you directly to what you're looking for. It is especially useful when doing assignments.
Answer Keys	Many exercises in the text have answer keys or partial answer keys at the back of the book (or at the back of individual chapters).	Whenever doing exercises or practice problems, make sure you are doing them correctly by continually checking your answers. It's important to know if you're on the right track.
Additional Exercises	Many texts offer extra practice.	For topics that you don't feel you have a firm understanding in, extra practice helps solidify concepts.
Additional Readings and Resources	Additional resources offer extra information about topics.	These are useful if you want more information for your own interest, or if you are doing an assignment or research paper on one of the topics from your textbook.
Endnotes and Bibliographies	Formal citations of sources used to prepare the text.	These will help you infer the author's biases and are also valuable if doing further research on the subject for a paper.

Why and How to Read the Textbook

You probably already know that you should read your textbooks. However, if you are like many students, reading textbooks might take second place to other priorities, such as attending class and completing assignments. Perhaps it may not seem clear how committing time to weekly reading will support you in achieving your learning goals. But there are strong reasons for committing to regular reading.

Reading textbooks helps you get the most out of your class time. This is especially true if you are able to read your textbook before going to class. Why? Because if you are hearing a lot of material in lecture for the very first time, it can often be difficult to take good notes and understand how all of the concepts fit together. If you are able to read your textbook before you go to class, you will already have a general understanding of the most important topics in that unit. You will already know some of the key words, and you will have a good idea of what you already understand well and what you might not quite understand yet. That way, when you go to class, your instructor's lecture will support and strengthen the things that you're already starting to learn. You'll be equipped to ask good questions and to participate well in class. Overall, you will get more out of the time you spend in class.

You become a better reader by reading. Learning to read textbooks well prepares you to read other complex material that you will encounter throughout your studies and later on in your career. Reading efficiently is a skill that you will use throughout your life – not just in your current classes.

Author's Story: Using the Index

I can't count the number of times the following scenario has played out.

A student comes to me exasperated. The student is trying to complete a homework assignment question but can't find the relevant information in the textbook that would help with the question. The student starts flipping through the pages of the text saying they've looked everywhere for the information but can't find it. They are either convinced it's not there, or they insist they've seen it in there before but now it's nowhere to be found. They continually flip as they explain how frustrated they are.

I ask them what they are looking for. They explain. I use the key words that they used to explain and look up those key words in the index of the textbook. It gives the page numbers of all the places in the text that are referenced to these key concepts. I choose the one that is in the chapter that they are currently working on. Then there it is. They are so amazed, and yet this is just the simple concept of remembering to use the index – a wonderful feature in the back matter of the textbook!

— Mary Shier, College of the Rockies

When you engage in reading your textbook, think about the following seven reading principles.

The Seven Reading Principles

Read the assigned material. I know this sounds like a no-brainer, but you might be surprised to learn how many students don't read the assigned material. Often, it takes longer to read the material than

had been anticipated. Sometimes it is not interesting material to us and we procrastinate reading it. Sometimes we're busy and it is just not a priority. It makes it difficult to learn the information your instructor wants you to learn if you do not read about it before coming to class.

Read it when assigned. This is almost as big a problem for students as the first principle. You will benefit exponentially from reading assignments when they are assigned (which usually means reading them before the instructor lectures on them). If there is a date for a reading on your syllabus, finish reading it before that date. The background knowledge you will attain from reading the information will help you learn and connect information when your instructor lectures on it, and it will leave you better prepared for class discussions. Further, if your instructor assigns you 70 pages to read by next week, don't wait until the night before to read it all. Break it down into chunks. Try scheduling time each day to read 10 or so pages. It takes discipline and self-control but doing it this way will make understanding and remembering what you read much easier.

Take notes when you read. Hermann Ebbinghaus is a researcher who determined that 42% of information we take in is lost after only 20 minutes without review. For the same reasons that it's important to take notes during lectures, it's important to take notes when you are reading. Your notes will help you concentrate, remember and review.

Relate the information to you. We remember information that we deem is important. The strategy then is to make what you are studying important to you. Find a way to directly relate what you are studying to something in your life. Sometimes it is easy and sometimes it is not. But if your attitude is "I will never use this information" and "it's not important," chances are good that you will not remember it.

Read with a dictionary or use an online dictionary. Especially with information that is new to us, we may not always recognize all the words in a textbook or their meanings. If you read without a dictionary and you don't know what a word means, you probably still won't know what it means when you finish reading. Students who read with a dictionary (or who look the word up online) expand their vocabulary and have a better understanding of the text. Take the time to look up words you do not know. Another strategy is to try to determine definitions of unknown words by context, thus eliminating the interruption to look up words.

Ask a classmate or instructor when you have questions or if there are concepts you do not understand. Visiting instructors during their office hours is one of the most underutilized college resources. Some students may be shy about going, which is understandable, but ultimately, it's your experience, and it's up to you if you want to make the most of it. If you go, you will get answers to your questions; at the same time, you'll demonstrate to your instructor that their course is important to you. Find out when your professor's office hours are (they are often listed in the syllabus), ask before or after class or email your professor to find out. Be polite and respectful.

Read it again. Some students will benefit from reading the material a second or third time, as it allows them to better understand the material. The students who understand the material the best usually score the highest on exams. It may be especially helpful to reread the chapter just after the instructor has lectured on it.

Reading your textbook and knowing how to navigate your textbook and use it as a useful resource can make a significant difference in your learning. You will discover that textbooks are your friends.

Text Attributions

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5.4 Memory Techniques

Many students complain that they can't remember necessary material. They say they understand the content when they read it, but can't recall it later. There is a difference between understanding and remembering. You may understand all the systems of the human body (they make sense when you read about them), but that doesn't mean you'll be able to recall the necessary terms. Fortunately there are memory techniques and strategies for you to use. Some will be more useful for some subjects and content than others.

As you identify the content you are working to learn, you will often discover things that you will need to commit to memory. There are numerous strategies that will help you to remember important information effectively so that you can recall it on tests, apply it to subsequent courses, and use it throughout your life and career.

Mastering Memory: Encode Store Retrieve

What is memory? Memory is the ability to remember past experiences, and a record of the learning process. The human brain has the ability, known as neuroplasticity, that allows it to form new neural pathways, alter existing connections, and adapt and react in ever-changing ways as we learn. Information must go into our long term memory and then, to retrieve it from our memory, we must have a way of getting it back.

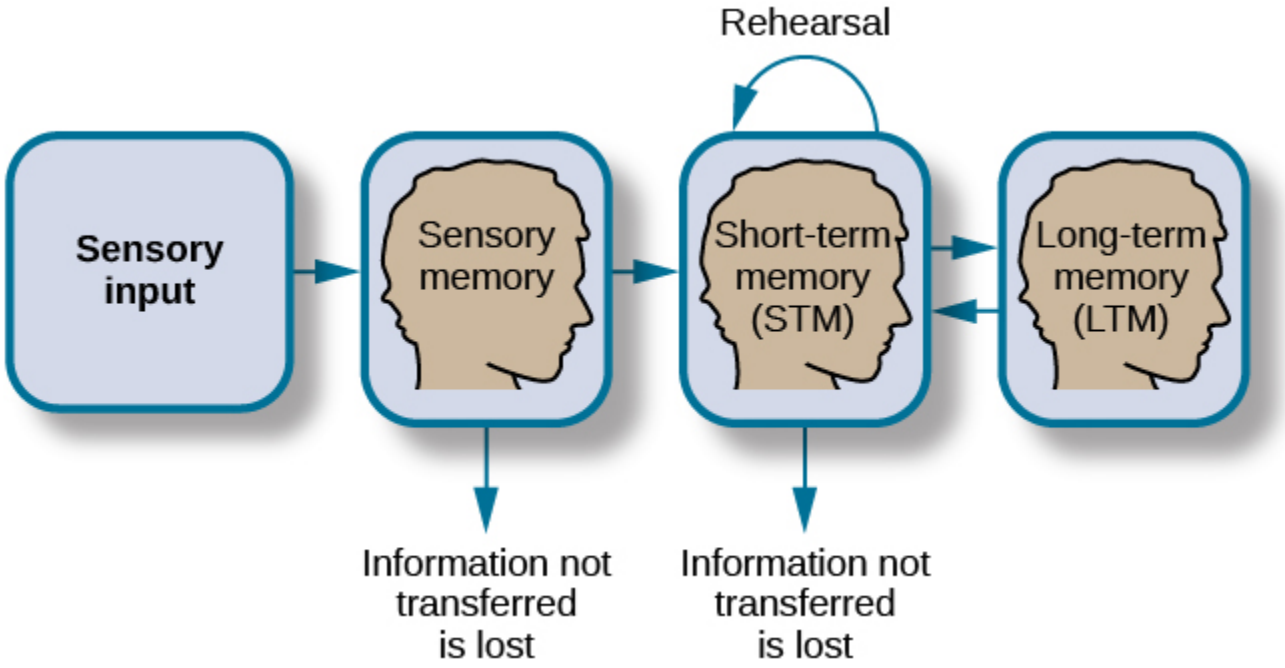
Long-term memory stores all the significant events that mark our lives; it lets us retain the meanings of words and the physical skills that we have learned. There are three steps involved in establishing a long term memory: encoding, storage, and retrieval.

1. To encode, you assign meaning to the information.
2. To store information, you review it and its meanings (study), as repetition is essential to remembering.
3. To retrieve it, you follow the path you created through encoding. This may include a number of memory triggers that you used when you were encoding.

An Information Processing Model

Once information has been encoded, we have to retain it. Our brains take the encoded information and place it in storage. Storage is the creation of a permanent record of information.

In order for a memory to go into storage (i.e. long-term memory), it has to pass through three distinct stages: Sensory Memory, Short-Term Memory, and finally Long-Term Memory. These stages were first proposed by Richard Atkinson and Richard Shiffrin (1968). Their model of human memory is based on the belief that we process memories in the same way that a computer processes information.



Atkinson-Shiffrin model of memory. [Image long description]

Learning, Remembering, and Retrieving Information

The first thing our brains do is to take in information from our senses (what we see, hear, taste, touch and smell). In many classroom and homework settings, we primarily use hearing for lectures and seeing for reading textbooks. Information we perceive from our senses is stored in what we call the short-term memory.

It is useful to then be able to do multiple things with information in the short-term memory. We want to: 1) decide if that information is important; 2) for the information that is important, be able to save the information in our brain on a longer-term basis—this storage is called the long-term memory; 3) retrieve that information when we need to. Exams often measure how effectively the student can retrieve "important information."

In some classes and with some textbooks it is easy to determine information important to memorize. In other courses with other textbooks, that process may be more difficult. Your instructor can be a valuable resource to assist with determining the information that needs to be memorized. Once the important information is identified, it is helpful to organize it in a way that will help you best understand.

Moving Information from the Short-term Memory to the Long-term Memory

This is something that takes a lot of time: there is no shortcut for it. Students who skip putting in the time and work often end up cramming at the end.

Once information is memorized, regardless of when the exam is, the last step is to apply the information. Ask yourself: In what real world scenarios could you apply this information? And for mastery, try to teach the information to someone else.

How we save information to our long-term memory has a lot to do with our ability to retrieve it when we need it at a later date. Our mind "saves" information by creating a complex series of links to the data. The stronger the links, the easier it is to recall. You can strengthen these links by using the following strategies. You should note how closely they are tied to good listening and note-taking strategies.

- **Make a deliberate decision to remember the specific data.** "I need to remember Richard's name" creates stronger links than just wishing you had a better memory for names.
- **Link the information to your everyday life.** Ask yourself, "Why is it important that I remember this material?"—and answer it.
- **Link the information to other information you already have "stored",** especially the key themes of the course, and you will recall the data more easily. Ask yourself how this is related to other information you have. Look for ways to tie items together. Are they used in similar ways? Do they have similar meanings? Do they sound alike?
- **Mentally group similar individual items into "buckets."** By doing this, you are creating links, for example, among terms to be memorized. For example, if you have to memorize a vocabulary list for a Spanish class, group the nouns together with other nouns, verbs with verbs, and so forth. Or your groupings might be sentences using the vocabulary words.
- **Use visual imagery.** Picture the concept vividly in your mind. Make those images big, bold, and colourful—even silly! Pile concepts on top of each other or around each other; exaggerate their features like a caricature; let your imagination run wild. Humor and crazy imagery can help you recall key concepts.
- **Use the information.** Studies have generally shown that we retain only 5 percent of what we hear, 10 percent of what we read, 20 percent of what we learn from multimedia, and 30 percent of what is demonstrated to us, but we do retain 50 percent of what we discuss, 75 percent of what we practice by doing, and 90 percent of what we teach others or use immediately in a relevant activity. Review your notes, participate in class, and study with others.
- **Break information down into manageable "chunks."** Memorizing the ten-digit number "3141592654" seems difficult, but breaking it down into two sets of three digits and one of four digits, like a phone number—(314) 159-2654—now makes it easier to remember. (Pat yourself on the back if you recognized that series of digits: with a decimal point after the three, that's the value of pi to ten digits. Remember your last math class?)
- **Work from general information to the specific.** People usually learn best when they get the big picture first, and then look at the details.
- **Eliminate distractions.** Every time you have to "reboot" your short-term memory, you risk

losing data points. Multi-tasking—listening to music or chatting on Facebook while you study—will play havoc with your ability to memorize because you will need to reboot your short-term memory each time you switch mental tasks.

- **Repeat, repeat, repeat.** Hear the information; read the information; say it (yes, out loud), and say it again. The more you use or repeat the information, the stronger the links to it. The more senses you use to process the information, the stronger the memorization. Write information on index cards to make flash cards and use downtime (when waiting for the subway or during a break between classes) to review key information.
- **This is a test.** Test your memory often. Try to write down everything you know about a specific subject, from memory. Then go back and check your notes and textbook to see how you did. Practicing retrieval in this way helps ensure long-term learning of facts and concepts.
- **Location, location, location.** There is often a strong connection between information and the place where you first received that information. Associate information to learning locations for stronger memory links. Picture where you were sitting in the lecture hall as you repeat the facts in your mind.

Exercise: Just for Fun

Choose a specific fact from each of your classes on a given day. Now find a way of working that information into your casual conversations during the rest of the day in a way that is natural. Can you do it? What effect do you think that will have on your memory of that information?

Exercise: Test Your Memory

Read the following list for about twenty seconds. After you have read it, cover it and write down all the items you remember.

- Arch
- Chowder
- Airplane
- Kirk
- Paper clip
- Column
- Oak
- Subway
- Leia
- Fries
- Pen
- Maple
- Window
- Scotty
- Thumb drive
- Brownies
- Door
- Skateboard
- Cedar
- Luke

How many were you able to recall? Most people can remember only a fraction of the items.

Now read the following list for about twenty seconds, cover it, and see how many you remember.

- Fries
- Chowder
- Brownies
- Paper clip
- Pen
- Thumb drive
- Oak
- Cedar
- Maple
- Airplane
- Skateboard
- Subway
- Luke
- Leia
- Kirk
- Scotty
- Column
- Window
- Door
- Arch

Did your recall improve? Why do you think you did better? Was it easier? Most people take much less time doing this version of the list and remember almost all the terms. The list is the same as the first list, but the words have now been grouped into categories. Use this grouping method to help you remember lists of mixed words or ideas.

Using Flashcards

Flash cards are a valuable tool for memorization because they allow students to be able to test themselves. They are convenient to bring with you anywhere, and can be used effectively whether a student has one minute or an hour. Create your own flash cards using index cards, writing the questions on one side and the answers on the other. Creating the flash cards help with memory because you need to decide what is important to put on the cards, summarize key principles, and the act of writing it down helps too. Then you can use them to review and/or test yourself repeatedly. You can use them almost anywhere. For example, you can pull out the flash cards on the bus and test yourself during your commute.

Using Mnemonics

What do the names of the Great Lakes, the makings of a Big Mac, and the number of days in a month have in common? They are easily remembered by using mnemonic devices. Mnemonics () (pronounced neh-MA-nicks) are tricks for memorizing lists and data. They create artificial but strong links to the data, making recall easier. The most commonly used mnemonic devices are acronyms, acrostics, rhymes, and jingles.

Acronyms () are words or phrases made up by using the first letter of each word in a list or phrase. Need to remember the names of the Great Lakes? Try the acronym HOMES using the first letter of each lake:

- **H**uron
- **O**ntario
- **M**ichigan

- **E**rie
- **S**uperior

To create an acronym, first write down the first letters of each term you need to memorize. Then rearrange the letters to create a word or words. You can find acronym generators online (just search for "acronym generator") that can help you by offering options. Organizing information in this way can be helpful because it is not as difficult to memorize the acronym, and with practice and repetition, the acronym can trigger the brain to recall the entire piece of information. Acronyms work best when your list of letters includes vowels as well as consonants and when the order of the terms is not important. If no vowels are available, or if the list should be learned in a particular order, try using an acrostic instead.

Acrostics () are similar to acronyms in that they work off the first letter of each word in a list. But rather than using them to form a word, the letters are represented by entire words in a sentence or phrase. If you've studied music, you may be familiar with "Every Good Boy Deserves Fudge" to learn the names of the notes on the lines of the musical staff: E, G, B, D, F. The ridiculous and therefore memorable line "My Very Educated Mother Just Served Us Nine Pizzas" was used by many of us to remember the names of the planets (at least until Pluto was downgraded):

My	Mercury
Very	Venus
Educated	Earth
Mother	Mars
Just	Jupiter
Served	Saturn
Us	Uranus
Nine	Neptune
Pizzas	Pluto

To create an acrostic, list the first letters of the terms to be memorized in the order in which you want to learn them (like the planet names). Then create a sentence or phrase using words that start with those letters.

Rhymes () are short verses used to remember data. A common example is "In fourteen hundred and ninety-two, Columbus sailed the ocean blue." Need to remember how many days a given month has? "Thirty days hath September, April, June, and November…," and so forth. Writing rhymes is a talent that can be developed with practice. To start, keep your rhymes short and simple. Define the key information you want to remember and break it down into a series of short phrases. Look at the last words of the phrases: can you rhyme any of them? If they don't rhyme, can you substitute or add a word to create the rhyme? (For example, in the Columbus rhyme, "ninety-two" does not rhyme with "ocean," but adding the word "blue" completes the rhyme and creates the mnemonic.)

Jingles () are phrases set to music, so that the music helps trigger your memory. Jingles are commonly

used by advertisers to get you to remember their product or product features. Remember "Two all-beef patties, special sauce, lettuce, cheese, pickles, onions on a sesame seed bun"—the original Big Mac commercial. Anytime you add rhythm to the terms you want to memorize, you are activating your auditory sense, and the more senses you use for memorization, the stronger the links to the data you are creating in your mind. To create a jingle for your data, start with a familiar tune and try to create alternate lyrics using the terms you want to memorize. Another approach you may want to try is reading your data aloud in a hip-hop or rap music style. The late Velma McKay, a former math instructor at College of the Rockies, was well known for singing to her students. She replaced the lyrics to many familiar songs and sang them in class to help them remember important math formulas. Imagine singing the quadratic formula to the tune of "London Bridge is Falling Down".

Exercise: Creative Memory Challenge

Create an acrostic to remember the noble gasses: helium (He), neon (Ne), argon (Ar), krypton (Kr), xenon (Xe), and the radioactive radon (Rn).

Create an acronym to remember the names of the G8 group of countries: France, the United States, the United Kingdom, Russia, Germany, Japan, Italy, and Canada. (Hint: Sometimes it helps to substitute terms with synonyms—"America" for the United States or "England" for the United Kingdom—to get additional options.)

Create a jingle to remember the names of the Seven Dwarfs: Bashful, Doc, Dopey, Grumpy, Happy, Sleepy, and Sneezy.

Mnemonics are good memory aids, but they aren't perfect. They take a lot of effort to develop, and they also take terms out of context because they don't focus on the meaning of the words. Since they lack meaning, they can also be easily forgotten later on, although you may remember them through the course.

Exercise: Memory Quiz

For each of the following statements, circle T for true or F for false

Flash cards provide convenient tools to review and test memory.	T	F
Multi-tasking enhances your active memory.	T	F
If you listen carefully, you will remember most of what was said for three days.	T	F
"Use it or lose it" applies to information you want to remember.	T	F
Mnemonics should be applied whenever possible.	T	F

Compilation of memory techniques

Type	Sample Method
Acronyms	Every discipline has its own language and acronyms are the abbreviations. Acronyms can be used to remember words in sequence or a group of words representing things or concepts. CAD can mean: Control Alt Delete, Canadian Dollar, Computer Aided Design, Coronary Artery Disease, Canadian Association of the Deaf, Crank Angle Degree, etc.
Acrostics	Acrostics are phrases where the first letter of each word represents another word. They are relatively easy to make and can be very useful for remembering groups of words. For example: King Philip Can Only Find His Green Slippers. This is the classification system of Kingdom, Phylum, Class, Order, Family, Genus, Species.
Chunking	You can capitalize on your short term memory by "chunking" information. If you need to remember this number: 178206781. The task would exhaust your seven units of storage space unless you "chunk" the digits into groups. In this case, you could divide it into three chunks, like a social insurance number: 178 206 781. By chunking the information and repeating it you can stretch the capacity of your short term memory.
Flash cards	Flash cards provide a convenient tool to test yourself frequently. You can purchase flash cards for common memory tasks such as learning multiplication tables, or you can create your own for learning facts, systems, and processes.
Images	This helps us remember by linking words to meanings through associations based on how a word sounds and creating imagery for specific words. This sort of visualization was found to be more effective when one listened to someone reading a text than when they read the text themselves.
Jingle	Jingles or short songs are great tools for memory. Remember the famous song to teach children parts of the body, "Head and shoulders, knees and toes, knees and toes, knees and toes. Head and shoulders, knees and toes. Eyes, ears, mouth and nose."
Locations and Journeys	Traditionally known as the Method of Loci, we associate each word from a list or grouping with a location. Imagine a place with which you are familiar, such as, the rooms in your house. These become the objects of information you need to memorize. Another example is to use the route to your work or school, with landmarks along the way becoming the information you need to memorize. When you do this in order of your journey through the imagined space, it makes it easier to retrieve all of the information in the future.
Maps & Diagrams	Graphic organizers help us remember by connecting new information to our existing knowledge and to let us see how concepts relate to each other and fit into a context. Mind and concept maps, Cause and Effect, Fishbone, Cycle, Flow Chart, Ladders, Story Board, Compare and Contrast, Venn Diagrams, and more.
Reciting	Saying something out loud activates more areas of our brain and helps to connect information to other activities.
Rhymes	Rhyme, rhythm, repetition, and melody make use of our brain's ability to encode audio information and use patterns to aid memory. They help recall by limiting the possible options to those items that fit the pattern you have created.
Summarizing	This traditional element of note taking is a way to physically encode materials that make it easier for our brain to store and retrieve. It can be said that if we cannot summarize, then we have not learned…yet.

Exercise: Try it

Select one course where memorizing key concepts is a part of your exam preparation. Choose at least one new strategy from the chart above this week. Monitor—is this strategy effective for what you are trying to learn? A good way to monitor is to see if you can recall the information accurately without looking at a text or notes.

Key Takeaways

- Moving information from sensory memory to short-term memory to long-term memory and being able to retrieve it requires repetition and strategies.
- To keep information in our memory, we must use it or build links with it to strengthen it in long-term memory.
- Key ways to remember information include linking it to other information already known; organizing facts in groups of information; eliminating distractions; and repeating the information by hearing, reading, and saying it aloud.
- To remember specific pieces of information, try creating a mnemonic that associates the information with an acronym or acrostic, a rhyme or a jingle.
- There are numerous memory strategies listed and it's wise to try them and see which ones work best for you.

Image Long Description

()Atkinson-Shiffrin model of memory: Sensory input leads to sensory memory. Information not transferred is lost. Sensory memory leads to short-term memory. Information not transferred is lost. Information that is rehearsed may remain in short-term memory. Short term memory leads to long-term memory. [Return to image]

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5.5 Study Groups

Study groups are a great idea—as long as they are thoughtfully managed. A study group can give you new perspectives on course material and help you fill in gaps in your notes. Discussing course content will sharpen your critical thinking related to the subject, and being part of a group to which you are accountable will help you study consistently. In a study group, you will end up "teaching" each other the material, which is the strongest way to retain new material. But remember, being in a group working together doesn't mean there will be less work for you as an individual; your work will just be much more effective.

Online Groups

Online groups can be incredibly effective. Using video-chat programs such as Skype or Messenger, study groups can work together, fulfilling the same goals as face-to-face groups. This is especially useful in online courses where students may be taking the course from distant locations.

Author's Story

I did a Master's in Distance Education and did the whole thing online. The students lived all over the world, and I regularly had classmates from Italy, Greece, Brazil, Ireland, and Australia, to name a few countries. Even the instructors lived all over. Though I never met any of the other students in person, I got to know them quite well and befriended a few. I got to know who I worked well with on projects and who were good study partners. We met regularly by Skype and it truly felt like friends meeting around the table to accomplish a goal.

— Mary Shier, College of the Rockies

Study Group Tips

Here are some tips for creating and managing effective study groups:

- **Think small.** Limit your study group to no more than three or four people. A larger group would limit each student's participation and make scheduling of regular study sessions a real problem.
- **Go for quality.** Look for students who are doing well in the course, who ask questions, and who participate in class discussions. Look for people who are likely to be willing to put the work in. Don't make friendship the primary consideration for who should be in your group. Meet up with your friends instead during "social time"—study time is all about learning.

- **Look for complementary skills.** Complementary skills make for a good study group because your weaknesses will be countered by another student's strengths. When a subject requires a combination of various skills, strengths in each of those skills is helpful (e.g. if one person is great coming up with ideas, another is great with analyzing logistics, and another is great with the fine details – together they could make a great team).
- **Meet regularly.** When you first set up a study group, agree to a regular meeting schedule and stick to it. Moving study session times around can result in non-participation, lack of preparation, and eventually the collapse of the study group. Equally important is keeping your sessions limited to the allotted times. If you waste time and regularly meet much longer than you agreed to, participants will not feel they are getting study value for their time invested. Optional visiting can be allowed after the regularly scheduled study time is over, which gives people the option of leaving knowing that the studying portion is over.
- **Define an agenda and objectives.** Give your study sessions focus so that you don't get sidetracked. Based on requests and comments from the group, the moderator should develop the agenda and start each session by summarizing what the group expects to cover and then keep the group to task.
- **Include some of the following items on your agenda:**
    - Review and discuss class and assignment notes since your last meeting.
    - Discuss assigned readings.
    - Quiz each other on class material.
    - "Reteach" aspects of the material team participants are unsure of.
    - Brainstorm possible test questions and responses.
    - Review quiz and test results and correct misunderstandings.
    - Critique each other's ideas for paper themes and approaches.
    - Define questions to ask the instructor.

Studying together helps the whole group learn better.

- **Assign follow-up work.** If there is any work that needs to be done between meetings, make sure that all team members know specifically what is expected of them and agree to do the work.
- **Rotate the role of moderator or discussion leader.** This helps ensure "ownership" of the group is spread equally across all members and ensures active participation and careful preparation.
- **Dead weight.** Inevitably there are people who don't pull their weight in a group assignment. This can be very frustrating for everyone. Don't be that person! It may mean you get away with not doing your fair share of the work, but in the end it will cost you. Others will not want you to be in their group in future assignments. Or you may have someone like this that you end up having to work with. You may have someone in your group who seems to mysteriously disappear when meetings happen and work is distributed, but is magically there

when it's time to hand it in and get credit. This can be most infuriating and feels incredibly unfair. However, dealing with these things is an important skill to develop and will be useful in the workplace as well.

Group work has many advantages and often means that the end product is a much better product than it would have been if done individually. Group work incorporates the strengths and perspectives of a number of people, making the result richer and more balanced. Often the exercise of group work is much more than coming up with the end product (the completed assignment). It invariably is about the journey and the process of getting there and the teamwork skills that are developed along the way.

Text Attributions

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5.6 Note-Taking

You've got the PowerPoint slides for your lecture, and the information in your textbook. Do you need to take notes as well?

Despite the vast amount of information available in electronic formats, taking notes is an important learning strategy. In addition, the way that you take notes matters, and not all note-taking strategies lead to equal results. By considering your note-taking strategies carefully, you will be able to create a set of notes that will help retain the most important concepts from lectures and tests, and that will assist you in your exam preparation.

Using note-taking in learning

Two Purposes for Taking Notes

People take notes for two main reasons:

1. To keep a record of the information they heard. This is also called the *external storage* function of note-taking.
2. To facilitate learning material they are currently studying.

The availability of information on the internet may reduce the importance of the *external storage* function of note-taking. When the information is available online, it may seem logical to stop taking notes. However, by neglecting to take notes, you lose the benefits of note-taking as a learning tool.

How Note-Taking Supports Learning

Taking notes during class supports your learning in several important ways:

1. Taking notes helps you to focus your attention and avoid distractions.
2. As you take notes in class, you will be engaging your mind in identifying and organizing the main ideas. Rather than passively listening, you will be doing the work of active learning while in class, making the most of your time.
3. Creating good notes means that you will have a record for later review. Reviewing a set of condensed and well-organized notes is more efficient than re-reading longer texts and articles.

Everybody takes notes, or at least everybody claims to. But if you take a close look, many who are claiming to take notes on their laptops are actually surfing the Web, and paper notebooks are filled with doodles interrupted by a couple of random words with an asterisk next to them reminding you that "This is important!" In college and university, these approaches will not work. Your instructors expect *you* to make connections between class lectures and reading assignments; they expect *you* to create an opinion about the material presented; they expect *you* to make connections between the material and life beyond school. Your notes are your road maps for these thoughts. Do you take good notes? Actively listening and note-taking are key strategies to ensure your student success.

Effective note-taking is important because it

- supports your listening efforts.
- allows you to test your understanding of the material.
- helps you remember the material better when you write key ideas down.
- gives you a sense of what the instructor thinks is important.
- creates your "ultimate study guide."

There are various forms of taking notes, and which one you choose depends on both your personal style and the instructor's approach to the material. Each can be used in a notebook, index cards, or in a digital form on your laptop. No specific type is good for all students and all situations, so we recommend that you develop your own style, but you should also be ready to modify it to fit the needs of a specific class or instructor. To be effective, all of these methods require you to listen actively and to think; merely jotting down words the instructor is saying will be of little use to you.

Note-taking methods

Method	Description	When to Use
Lists	A sequential listing of ideas as they are presented. Lists may be short phrases or complete paragraphs describing ideas in more detail.	This method is what most students use as a fallback if they haven't learned other methods. This method typically requires a lot of writing, and you may find that you are not keeping up with the professor. It is not easy for students to prioritize ideas in this method.
Outlines	The outline method places most important ideas along the left margin, which are numbered with roman numerals. Supporting ideas to these main concepts are indented and are noted with capital letters. Under each of these ideas, further detail can be added, designated with an Arabic number, a lowercase letter, and so forth.	A good method to use when material presented by the instructor is well organized. Easy to use when taking notes on your computer.
Concept Maps	When designing a concept map, place a central idea in the centre of the page and then add lines and new circles in the page for new ideas. Use arrows and lines to connect the various ideas.	Great method to show relationships among ideas. Also good if the instructor tends to hop from one idea to another and back.

Method	Description	When to Use
Cornell Method	The Cornell method uses a two-column approach. The left column takes up no more than a third of the page and is often referred to as the "cue" or "recall" column. The right column (about two-thirds of the page) is used for taking notes using any of the methods described above or a combination of them. After class or completing the reading, review your notes and write the key ideas and concepts or questions in the left column. You may also include a summary box at the bottom of the page, in which to write a summary of the class or reading in your own words.	The Cornell method can include any of the methods above and provides a useful format for calling out key concepts, prioritizing ideas, and organizing review work. Most universities recommend using some form of the Cornell method.

The List Method

Example: The List Method of Note-taking

Learning Cycle

September 3

Prof. Jones

The learning cycle is an approach to gathering and retaining info that can help students be successful in Col. The cycle consists of 4 steps which should all be app'd. They are preparing, which sets the foundation for learning, absorbing, which exposes us to new knowledge, capturing, which sets the information into our knowledge base and finally reviewing and applying which lets us set the know. into our memory and use it.

Preparing for learning can involve mental preparation, physical prep, and oper. prep. Mental prep includes setting learning goals for self based on what we know the class w/ cover (see syllabus)/ Also it is very important to do any assignments for the class to be able to learn w/ confidence and…. _____

Physical Prep means having enough rest and eating well. Its hard to study when you are hungry and you won't listen well in class if you doze off.

Operation Prep means bringing all supplies to class, or having them at hand when studying… this includes pens, paper, computer, textbook, etc. Also means setting to school on time and getting a good seat (near the front).

Absorbing new knowledge is a combination of listening and reading. These are two of the most important learning skills you can have.

The list method is usually not the best choice because it is focused exclusively on capturing as much of what the instructor says as possible, not on processing the information. Most students who have not learned effective study skills use this method, because it's easy to think that this is what note-taking is all about. Even if you are skilled in some form of shorthand, you should probably also learn one of the other methods described here, because they are all better at helping you process and remember the material. You may want to take notes in class using the list method, but transcribe your notes to an outline or concept map method after class as a part of your review process. It is always important to review your notes as soon as possible after class and write a summary of the class in your own words.

The Outline Method

Example: The Outline Method of Note-taking

Learning Cycle
September 3
Prof Jones

Learning is a cycle made up of 4 steps:

1. Preparing: Setting the foundation for learning.
2. Absorbing: (Data input) Exposure to new knowledge.
3. Capturing: Taking ownership of the knowledge.
4. Review & Apply: Putting new knowledge to work.

1. Preparing
    1. Mental Prep.
        1. Do assignments – New knowledge is built on prior knowledge.
            1. assignments from prior classes.
            2. Readings! (May not have been assigned in class – see Syllabus!)
        2. Review Syllabus
            1. Know what instructor expects to cover
            2. Know what assignments you need to do
            3. Set your own objective
    2. Physical Prep
        1. Get right about of rest. Don't zzz in class.
        2. Eat right. Hard to focus when you are hungry.
        3. Arrive on time.
    3. Practical Prep (Organizational Prep):
        1. Bring right supplies – (Notebooks, Texts, Pens, etc.)
        2. Arrive on time
            1. Get organized and ready to listen

2. Don’t unterupt the focus of others
3. Get a good seat

3. Sit in the front of the class.

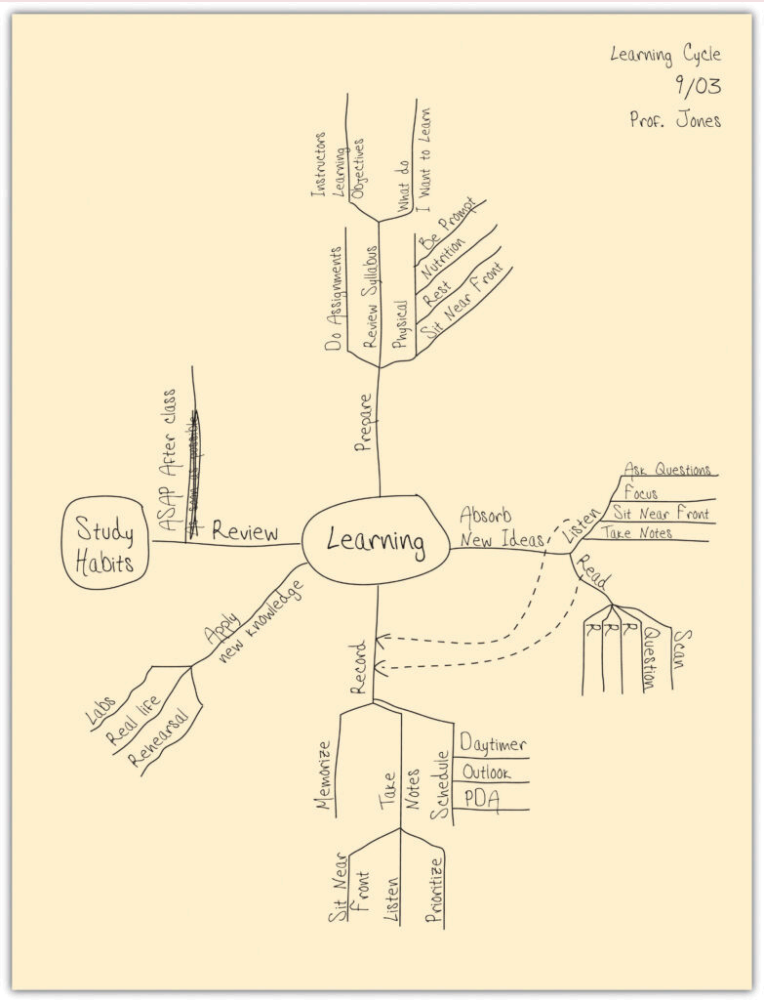
The advantage of the outline method is that it allows you to prioritize the material. Key ideas are written to the left of the page, subordinate ideas are then indented, and details of the subordinate ideas can be indented further. To further organize your ideas, you can use the typical outlining numbering scheme (starting with roman numerals for key ideas, moving to capital letters on the first subordinate level, Arabic numbers for the next level, and lowercase letters following.) At first you may have trouble identifying when the instructor moves from one idea to another. This takes practice and experience with each instructor, so don’t give up! In the early stages you should use your syllabus to determine what key ideas the instructor plans to present. Your reading assignments before class can also give you guidance in identifying the key ideas.

If you’re using your laptop computer for taking notes, a basic word processing application (like Microsoft Word or Works) is very effective. Format your document by selecting the outline format from the format bullets menu. Use the increase or decrease indent buttons to navigate the level of importance you want to give each item. The software will take care of the numbering for you!

After class be sure to review your notes and then summarize the class in one or two short paragraphs using your own words. This summary will significantly affect your recall and will help you prepare for the next class.

The Concept Map Method

Example: The Concept Map Method of Note-taking



Right-click the image and select "Open Image in New Tab" to see the full size.

This is a very graphic method of note-taking that is especially good at capturing the relationships among ideas. Concept maps harness your visual sense to understand complex material "at a glance." They also give you the flexibility to move from one idea to another and back easily (so they are helpful if your instructor moves freely through the material).

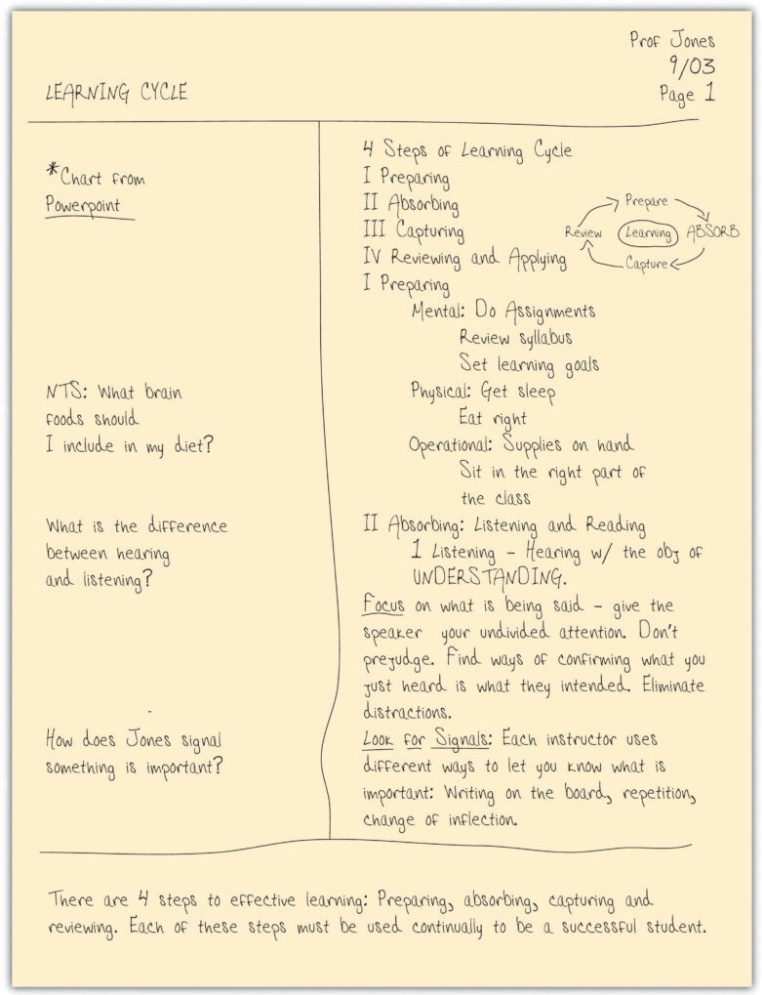
To develop a concept map, start by using your syllabus to rank the ideas you will listen to by level of detail (from high-level or abstract ideas to detailed facts). Select an overriding idea (high level or abstract) from the instructor's lecture and place it in a circle in the middle of the page. Then create branches off that circle to record the more detailed information, creating additional limbs as you need them. Arrange the branches with others that interrelate closely. When a new high-level idea is presented,

create a new circle with its own branches. Link together circles or concepts that are related. Use arrows and symbols to capture the relationship between the ideas. For example, an arrow may be used to illustrate cause or effect, a double-pointed arrow to illustrate dependence, or a dotted arrow to illustrate impact or effect.

As with all note-taking methods, you should summarize the chart in one or two paragraphs of your own words after class.

The Cornell Method

Example: The Cornell Method of Note-taking



Right-click the image and select "Open Image in New Tab" to see the full size.

The Cornell method was developed in the 1950s by Professor Walter Pauk at Cornell University [1]. It is recommended by many universities because of its usefulness and flexibility. This method is simple to use for capturing notes, is helpful for defining priorities, and is a very helpful study tool.

The Cornell method follows a very specific format that consists of four boxes: a header, two columns, and a footer.

The header is a small box across the top of the page. In it you write identification information like the course name and the date of the class. Underneath the header are two columns: a narrow one on the left (no more than one-third of the page) and a wide one on the right. The wide column, called the "notes" column, takes up most of the page and is used to capture your notes using any of the methods outlined earlier. The left column, known as the "cue" or "recall" column, is used to jot down main ideas, keywords, questions, clarifications, and other notes. It should be used both during the class and when reviewing your notes after class. Finally, use the box in the footer to write a summary of the class in your own words. This will help you make sense of your notes in the future and is a valuable tool to aid with recall and studying.

Using Index Cards for the Cornell Method

Some students like to use index cards to take notes. They actually lend themselves quite well to the Cornell method. Use the "back" or lined side of the card to write your notes in class. Use one card per key concept. The "front" unlined side of the card replaces the left hand "cue" column. Use it after class to write keywords, comments, or questions. When you study, the cards become flash cards with questions on one side and answers on the other. Write a summary of the class on a separate card and place it on the top of the deck as an introduction to what was covered in the class.

> "I used to tape my lecture classes so I could fill in my sketchy notes afterwards. Now that I'm using the Cornell system, my notes are complete and organized in much less time. And my regular five-minute reviews make learning almost painless. No more taping and listening twice."
>
> — A student at Southern Methodist University

You will have noticed that all methods end with the same step: reviewing your notes as soon as possible after class. Any review of your notes is helpful (reading them, copying them into your computer, or even recasting them using another note-taking method). But THINK! Make your review of notes a thoughtful activity, not a mindless process. When you review your notes, think about questions you still have and determine how you will get the answers. (From the next class? Studying with a friend? Looking up material in your text or on the net?) Examine how the material applies to the course; make connections with notes from other class sessions, with material in your text, and with concepts covered in class discussions. Finally, it's fun to think about how the material in your notes applies to real life. Consider

1. Pauk, W. & Owens, R.J.Q. (2013). *How to Study in College*. Boston, MA: Wadsworth, Cengage Learning.

this both at the very strategic level (as in "What does this material mean to me in relation to what I want to do with my life?") as well as at a very mundane level (as in, "Is there anything cool here I can work into a conversation with my friends?").

Instructor Handouts

Some instructors hand out or post their notes or their PowerPoint slides from their lectures. These handouts should *never* be considered a substitute for taking notes in class. They are a very useful complement and will help you confirm the accuracy of your notes, but they do not involve you in the process of learning as well as your own notes do. After class, review your notes with highlighter in hand and mark keywords and ideas in your notes. This will help you write a summary of the class in your own words.

General Tips on Note-Taking

Regardless of what note-taking method you choose, there are some note-taking habits you should get into for all circumstances and all courses:

1. **Be prepared.** Make sure you have the tools you need to do the job. If you are using a notebook, be sure you have it with you and that you have enough paper. Also be sure to have your pen (as well as a spare) and perhaps a pen with different-coloured ink to use for emphasis. If you are taking notes on your laptop, make sure the battery is charged! Select the application that lends itself best to your style of note-taking. Microsoft Word works very well for outline notes, but you might find taking notes in Excel to work best if you are working within the Cornell method. (It's easier to align your thoughts in the cue or recall column to your notes in the right column. Just be sure you keep one idea per row!)
2. **Write on only one side of the paper.** This will allow you to integrate your reading notes with your class notes.
3. **Label, number, and date all notes at the top of each page.** This will help you keep organized.
4. **When using a laptop, position it such that you can see the instructor and white board right over your screen.** This will keep the instructor in your field of vision even if you have to glance at your screen or keyboard from time to time. Make sure your focus remains with the instructor and not on your laptop. A word of caution about laptops for note-taking: use them if you are very adept at keyboarding, but remember that not all note-taking methods work well on laptops because they do not easily allow you to draw diagrams and use special notations (scientific and math formulas, for example).
5. **Don't try to capture everything that is said.** Listen for the big ideas and write them down. Make sure you can recognize the instructor's emphasis cues and write down all ideas and keywords the instructor emphasizes. Listen for clues like "the four causes were…" or "to sum up.…"
6. **Copy anything the instructor writes on the board.** It's likely to be important.
7. **Leave space between ideas.** This allows you to add additional notes later (e.g. notes on the

answer to a question you or one of your classmates asked).

8. **Use signals and abbreviations.** The ones you use are up to you, but be consistent so you will know exactly what you mean by "att." when you review your notes. You may find it useful to keep a key to your abbreviations in all your notebooks.
9. **Use some method for identifying your own thoughts and questions to keep them separate from what the instructor or textbook author is saying.** Some students use different colour ink; others box or underline their own thoughts. Do whatever works for you.
10. **Create a symbol to use when you fall behind** or get lost in your note-taking. Jot down the symbol, leave some space, and focus on what the instructor is covering now. Later you can ask a classmate or the professor to help you fill in what you missed, or you can find it in your textbook.
11. **Review your notes as soon after class as possible (the same day is best).** *This is the secret to making your notes work!* Use the recall column to call out the key ideas and organize facts. Fill in any gaps in your notes and clean up or redraw hastily drawn diagrams.
12. **Write a summary of the main ideas of the class in your own words.** This process is a great aid to recall. Be sure to include any conclusions from the lecture or discussion.
13. **Use notes when preparing for a test or doing an assignment.** Your notes usually have a summary of the most important points and are useful for making sure you incorporate important concepts in your assignments and for focusing on the main concepts when studying for tests and exams.

This video provides some great tips for note-taking as well.

Video: "How to Take Great Notes" (length 5:08)

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://opentextbc.ca/studentsuccess/?p=148#oembed-1 (#oembed-1)

Exercise: Journal Entry

Choose one of your classes where you normally take notes. Make a conscious effort to use the Cornell method with either the outline or concept map method for taking your notes. Follow as many steps listed previously as possible. Now compare these notes with those you took in the previous class. Are your new notes more useful? What did you like about taking notes this way? What are some of the things you need to work on improving? (Remember this will get much easier with more practice.) Write your thoughts down.

What If You Miss Class?

Clearly the best way to learn class material is to be at the class and to take your own notes. In university,

regular attendance is expected. But life happens. On occasion, you may have to miss a class or lecture. When this happens, here are some strategies you can use to make up for it:

- Check with the instructor to see if there is another section of the class you can attend. Never ask the instructor "Did I miss anything important?" (Think about what that's saying and you'll see it's rather insulting.)
- If the instructor posts his or her lectures as a podcast, listen to the lecture online and take notes. If the instructor uses PowerPoint slides, request a copy (or download them if posted) and review them carefully, jotting down your own notes and questions. Review your notes with a classmate who did attend.
- You may want to borrow class notes from a classmate. If you do, don't just copy them and insert them in your notebook. They will not be very helpful. When you borrow notes from a classmate, you should photocopy them and then review them carefully and mark your copy with your own notes and questions. Use your textbook to try to fill in the gaps. Finally, schedule a study session with the person who gave you the notes to review the material and confirm your understanding.
- If none of these options is available for you, use the course syllabus to determine what was covered in the class, then write a short paper (two pages or so) on the material using the class readings and reliable online sources. See your instructor during office hours to review your key findings and to answer any questions you still may have.

Group Notes: A Collaborative Approach

Groups within a class can take notes together using file-sharing software on the Cloud such as Google Docs. The individuals in the group can add to the document in real time as different individuals are adding themselves. This creates a collaborative document that all can use, download, (or adapt). This won't work for all situations but can be very useful especially in a fast-moving classroom.

Keeping Your Notes

Class is over, and you have a beautiful set of notes in your spiral notebook or saved in your laptop. You have written the summary of the class in your own words. Now what?

Start by organizing your notes. We recommend you use a three-ring binder for each of your subjects. Print your notes if you used a computer. If you used note cards, insert them in plastic photo holders for binders. Group all notes from a class or unit together in a section; this includes class notes, reading notes, and instructor handouts. You might also want to copy the instructor's syllabus for the unit on the first page of the section.

Next, spend some time linking the information across the various notes. Use the recall column in your notes to link to related information in other notes (e.g. "See class notes date/page").

If you have had a quiz or test on the unit, add it to your binder, too, but be sure to write out the correct answer for any item you missed. Link those corrections to your notes, too.

Use this opportunity to write "notes on your notes." Review your summary to see if it still is valid in light of your notes on the reading and any handouts you may have added to your notes package.

You don't need to become a pack rat with your notes. It is fairly safe to toss them after the end of a course except in the following cases:

1. If the course you took is a prerequisite for another course, or when the course is part of a standard progression of courses that build upon each other (this is very common in math and science courses), you should keep them as a reference and review for the follow-up course.
2. If the course may pertain to your future major, keep your notes. You may not realize it now that they may have future value when you study similar topics or even the same topics in more depth.
3. If you are very interested in the course subject and would like to get into the material through a more advanced course, independent study, or even research, keep your notes as a prep tool for further work.

Key Takeaways

- Good note-taking is a key strategy for academic success.
- Choose among effective note-taking styles for what works best for you and modify it to meet the needs of a specific class or instructor.
- List notes are generally less effective and not prioritized.
- Outlines work well for taking notes on a laptop when the instructor is well organized.
- Concept map notes are good for showing the relationships among ideas.
- The Cornell method is effective for calling out key concepts and organizing notes for review.
- Instructor handouts and PowerPoint presentations help with—but do not replace the need for—personal note-taking.
- If you miss a class, explore your options for replacing your missing notes.
- Keep your notes organized in a way that makes it easy to study for tests and other uses in the future.

Exercise: Note-taking

1. Name two advantages of the Cornell system over the list method of note-taking.
2. Describe the benefits of—and potential problems with—taking class notes on a laptop.
3. List at least three ways to make up for missing notes because you miss a class.

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5.7 Study Habits

> "If you study to remember, you will forget, but, if you study to understand, you will remember."
>
> — Author unknown

Why do some students earn good grades and others do not? Students with poor grades often say students with good grades are born book smart. Students with good grades often answer that studying and hard work got them there. What do you think?

Everyone likes to earn an "A" grade. Despite the stigma of being a "nerd," it feels good to receive good grades. Take pride in your preparation, take pride in your studying, and take pride in your accomplishments. Students know many things they need to do in order to achieve good grades – they just don't always *do* them.

This section is about good study habits. It encompasses much of what is being discussed throughout the text. If you make these practices into habits, it will serve you well throughout your student life.

Be Prepared for Each Class

Complete your assigned reading ahead of the deadline. Follow the syllabus so that you'll have familiarity with what the instructor is speaking about. Bring your course syllabus, textbook, notebook and any handouts or other important information for each particular class along with a pen and a positive attitude. Become interested in what the instructor has to say. Be eager to learn. Sleep adequately the night before class and ensure you do not arrive to class on an empty stomach. Many courses, both in person and online, use digital platforms called Learning Management Systems (LMS's). Examples of these are Canvas, Blackboard, and Moodle. Students then have access to course notes, and Power Point slides, and often videos of the class lectures. These are great to access for missed classes, and for review of materials; you can listen to the lecture again while doing dishes or vacuuming. It is important for students to check their email regularly as well as announcements or notifications from their instructor through the LMS.

Attend Every Class

Attending each and every class requires a lot of self-discipline and motivation. Doing so will help you remain engaged and involved in course topics, provide insight into what your instructor deems most important, allow you to submit work and receive your graded assignments and give you the opportunity to take quizzes or exams that cannot be made up. This applies whether it's a face-to-face class or whether it's a synchronous online class.

Missing class is a major factor in students dropping courses or receiving poor grades. In addition, students attempting to make up the work from missing class often find it overwhelming. It's challenging to catch up if you get behind.

Sit Front and Centre

Author's Story

Full disclosure: I loved to sit in the back of the classroom when I was in college. I felt more comfortable back there. I didn't want to make eye contact with my instructor. I didn't want to be called on. But I learned that if I wanted to give myself the best opportunity to see, hear, understand and learn, then I needed to sit in the front and centre. And in order to make sure I sat in the front and centre, I needed to arrive to my classes early.

— Dave Dillon, author of *Blueprint for Success in College and Career*

Your instructor may say, "Sit wherever you want — sit where you are most comfortable." But if you were to attend a concert for your favourite artist, where would you like to be? It's always right in front of the stage, because the best experience is closest to the band. That's why front-and-centre tickets are the most expensive. There are some reasons sitting in the back works for some students. But you run the risk of sitting behind someone you cannot see over. And if you're sitting in the back so that you can send text messages without being seen, so that you can work on something else, or so that you can disengage (not pay attention without the instructor noticing), then you're sitting in the back for the wrong reasons. Rather than hiding, you want to create the best learning environment, from seeing and hearing perspectives.

Take Notes in Class

Hermann Ebbinghaus, a German psychologist, scientifically studied how people forget in the late 1800's. He is known for his experiments using himself as a subject, and tested his memory by learning nonsense syllables. One of his famous results, known as the forgetting curve, shows how much information is forgotten quickly after it is learned. Without reviewing, we will forget. Since we forget 42% of the information we take in after only 20 minutes (without review), it is imperative to take notes to remember.

Take Notes When You Are Reading

For the same reason as above, it is helpful to take notes while you are reading to maximize memorization. Sometimes called Active Reading, the goal is to stay focused on the material and to be able to refer back to notes made while reading to improve retention and study efficiency. Don't make the mistake of expecting to remember everything you are reading. Taking notes when reading requires effort and energy. Be willing to do it and you'll reap the benefits later.

Summarize

Summarize your notes, your class discussions, your text chapters, and your thoughts on a topic. Summarize what you are learning about to people you know. Anytime you get the chance to summarize, you are taking the opportunity to think through what you know about a topic and sort it out in your brain, which helps you understand it better and remember it better.

Know What the Campus Resources Are and Where They Are, and Use Them

There are many campus resources at your college or university and often students don't know they exist, where they are or that most of them are free. Find out what is available to you by checking your school's website for campus resources or student services, or talk to a counsellor about what resources may be helpful for you. Check to see where your campus has resources for Education Advising, Counselling, Tutoring, Writing assistance, a Library, Admissions and Records (or Registrar's), Financial Aid, Health Centre, Career Centre, Accessibility Support Services (for people with disabilities), and other support services. If you see a sign in your school marked, Student Services, go and check it out. Talk to someone at the desk about the services that are offered there. It really is what it says…… Student Services!

Make use of campus resources.

Read and Retain Your Syllabus

In addition to acting as a contract between the instructor and you, the syllabus is also often the source of information for faculty contact information, textbook information, classroom behaviour expectations, attendance policy and course objectives. Some students make the mistake of stuffing the syllabus in their backpack when they receive it on the first day of class and never taking a look at it again. Those who clearly read it, keep it for reference and review it frequently find themselves more prepared for class. If there is something in the syllabus you don't understand, ask your instructor about it before class, after class or during their office hours.

Place Your Assignments on Your Master Calendar and Create Plans for Completing Them Before They Are Due

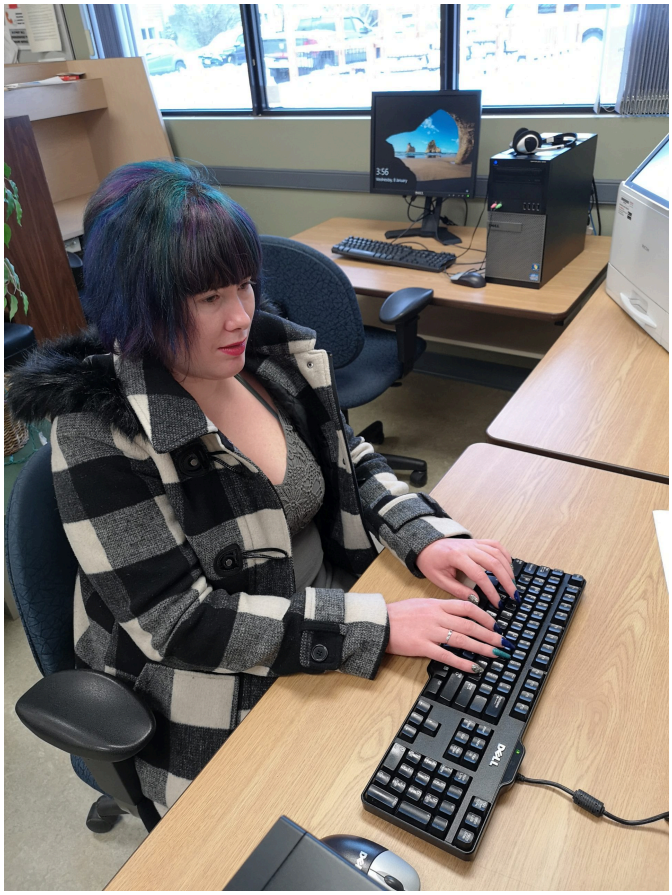
Place all of your assignments for all of your classes with their due dates in your calendar, planner, smart phone or whatever you use for organization. Successful students will also schedule when to start those assignments and have an idea of how long it will take to complete them. They will schedule to complete the assignments several days BEFORE they are actually due. (This eases a lot of stress if unexpected circumstances arise on the last day of the deadline – and they often do!)

Complete All of Your Assignments

There will be things that you are more interested in doing than your assignments and unexpected life happenings that will come up. Students who earn good grades have the motivation and discipline to complete all of their assignments.

Proofread Numerous Times and Then Have Someone Read Your Papers Before You Submit Them

Proof-read your assignments several times before submitting them, preferably with time in between each read. You will catch mistakes, and things that need further clarification when you read it with fresh eyes. You might be surprised to learn how many students turn in papers with spelling, grammar and punctuation errors that could have been corrected easily by using a spellchecker program or extra proof-reading. Many schools offer writing centres or tutors who will read your paper and give feedback, make suggestions, and help shape ideas. Take advantage of these services if they are offered. Another strategy is to read your paper aloud to yourself. You may catch errors when you read aloud that you might not catch when reading your writing. Or get a classmate to proof it. Agree to proof-read each other's. (This requires having them finished well before the actual deadline.) Remember that it is always the student's responsibility to have papers proofread, not someone else's.



Work done outside of class time is every bit as important as work done in class.

Author's Story

I have been told numerous times that I am a good writer – "a natural". Several of my Master's instructors commented about that on my papers. But the truth is that it is not natural. I proof-read my papers at least four times before submitting them, and I make changes every time. When I read them with fresh eyes (the next day, or hours later), I catch mistakes, and more importantly I see when ideas don't link together smoothly. Often they need a little more information or a better explanation to link them together. Or I notice where I've been redundant. The paper gets better every time I go through it. By the end, it is a much more polished product than when I first thought I was finished.

I am a college instructor and I mark other people's papers all the time. I am accustomed to looking for mistakes and they pop off the page at me. And yet, I find the very same errors in my own writing. I don't know how these mistakes end up on the page – but they do! Fortunately, I can catch these errors in a proof-read (or two), but I am very well aware that I'm capable of making them in the first place. Assume your paper needs to be checked and polished. If you have the opportunity, have someone else read it. They can let you know if something doesn't make sense or leaves the reader confused. They will let you know if you need to condense it and be more succinct. Then fix it.

A good paper seems to flow naturally, and though that may be true, it didn't necessarily start out that way!

— Mary Shier, College of the Rockies

Ask Questions

Many students feel like they are the only one that has a question or the only one that doesn't understand something in class. I encourage you to ask questions during class, especially if your instructor encourages them. Other students who are too intimidated to ask will be thankful you did. If the instructor doesn't encourage questions during class, make the effort to ask your questions before or after class or during your instructors' office hours.

If you take a class offered online, it is wise to ask a lot of questions via the preferred method your instructor recommends. Since the delivery method is different to what most students are used to, it is natural for students in online courses to have more questions. Online students may ask questions to understand the material and to be able to successfully navigate through the course content.

Complete All Assigned Reading at the Time It Is Assigned

College courses have much more assigned reading than what most high school students are accustomed to, and it can take a while to become comfortable with the workload. Some students fall behind early in keeping up with the reading requirements and others fail to read it at all. You will be most prepared for your class and for learning if you complete the reading assigned before your class. Staying on top of your syllabus and class calendar will help you be aware of your reading assignment deadlines. There is a difference in assigned reading between high school and college. In high school, if a teacher gave a handout to read in class, students would often read it during class to prepare to participate in a class

discussion. In college, more reading is assigned with the expectation it will be done outside of the classroom. It is a big adjustment students need to make in order to be successful.

Study Groups or Study Partners

Study in the environment that works best for you, but ensure that you try a study group, especially if you are taking a class in a subject in which you are not strong. Study groups can allow for shared resources, new perspectives, answers for questions, faster learning, increased confidence, and increased motivation.

Review for Exams

Preparation for an exam should begin on the first day of class, not when the exam is announced nor the night before an exam. Review your notes frequently to keep material fresh in your head. For the days leading up to the exam, test yourself to see if you can generate the answers. Don't just passively read your notes and textbook.

Library cubicles are great places to review and study for exams.

Schedule Time for Studying

Effective studying is an ongoing process of reviewing course material. The first and most important thing you should know is that studying is not something you do a few days before an exam. To be effective, studying is something you do as part of an ongoing learning process, throughout the duration of the term. It's easy to put off studying if it's not something you schedule. Block specific times and days for studying. Put the times on your calendar. Stick to the schedule.

Don't Do Anything Academically "Half-assed"

Half-assed is defined as poorly or incompetently done.

Think of it this way: You've made the decision to come to college. You're investing time, energy and money into your commitment. Why would you want to half-ass it? Students who miss class, turn in work late or wait until the last minute are half-assing it. Make college a priority and do your best in all of your college work and preparation.

Apply these basic principles and you will be giving yourself the best opportunity to achieve success. Here's a little secret: apply this to all aspects of life, not just academics and you'll find success in life!

Author's Story

When I returned to university for graduate studies, I knew I needed to adopt better study skills than what I used in my undergraduate studies many years earlier. For one thing, I never allotted enough time for reading. I am a critical reader, which can be time consuming as I stop, reflect, reread, problem-solve and connect things to previous concepts. Once I realized this about myself, I decided to schedule more time for reading than I usually anticipated. I even started timing myself to have a sense of how long it takes me to read a chapter, so I could effectively allot an appropriate amount of reading time. I divided up readings for each unit and made a study schedule each week which included daily readings, time in forums, and assignments.

It made a huge difference when I started doing this, because not only did I feel like it kept me on task, but just knowing that all required activities were on the schedule relieved anxiety. It became a necessary ritual on Sunday afternoons to lay out all the tasks in detail for the next week. It always felt doable and set me on the right mental course for the week ahead. This was especially important for the heavy load semesters. Before using this method, it was easy to focus on one course more than another, which then needed correction – which caused angst. Being scheduled in my tasks gave me a sense of control. I chose to make my program a priority. Having a study skills strategy that I stuck to worked!

Once committed to these study strategies, it was necessary to make them work in varied situations. Allotting more time to read the readings, sometimes meant having to read while in the passenger seat of a car, or listen to text-to-speech audio on my cell phone while doing housework or exercise, or reading through meals. Applying them in different contexts became natural. Readings and assignments were constantly part of life no matter what I was doing. Being creative and adapting solutions to varying situations is an important competency in adult education. You too will have to find strategies that work for you.

— Mary Shier, College of the Rockies

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5.8 Chapter Review and Activities

There have been a lot of study strategies presented in this chapter, so it may seem a little overwhelming to try to incorporate them all. You will want to reflect on which ones seem like they will be most relevant for you. They are all important, of course; however, some will be more appropriate for you personally depending on your strengths, your weaknesses, your circumstances, your previous study habits, and the requirements of the course you are taking.

Look at the chart below to see examples of how these different criteria can help you adapt your study habits to personalize them to your individual needs.

Analyzing Needs in Your Study Habits

Criteria	Example(s)	Impact on study habits
Strengths	You are already a strong reader and have exceptional reading comprehension.	You may not need to focus on strategies for reading critically.
Weaknesses	You have typically been fairly disorganized with your course materials, homework assignments, and resources.	You may need to focus on learning environment and organizational strategies.
Circumstances	You are very busy in your life with jobs and parenting responsibilities.	You may need to focus on time management skills, or on alternate methods of study such as listening to audio-books while commuting and doing chores.
Previous study habits	In the past you always left studying for tests and working on assignments until the last minute.	You may need to focus on the time management skills.
Course requirements	Sometimes specific courses require more of a certain skill than others. For example, biology involves a lot of memory work.	You may need to strategically adopt some memory techniques.

Exercise: Study Skills Summary

Reflect on the various study skills discussed in Chapter 5 and how they relate to your own studying.

- What are the study skill topics which you feel you do fairly well with?
- What are the areas that you are the weakest in?
- Identify some of the strategies that are most important for you to focus on in your current situation. Explain why using some of the criteria from the above chart.

Key Takeaways

- Establish a study space that is available and organized, has necessary supplies, is reasonably free of distractions, and meets your study and psychological needs.
- Reading critically can enhance your comprehension. Using strategies such as SQ3R, KWL, or the RA approach can develop your reading and study skills.
- Knowing how to navigate textbooks helps save time and find information efficiently. Knowing how to use and interpret the front matter, the back matter, summaries, graphics, charts, and review material can be incorporated into an effective study plan.
- Understanding the basics of how memory works aids in encoding, storing, and retrieving information. Memory strategies help move information from sensory memory to short-term memory to long-term memory. Some key strategies include linking information, mentally grouping information, visual imagery, using the information, chunking information, linking to location, testing, and repetition.
- Study groups are a great way to learn together and take advantage of different students' strengths – incorporating complementary skills. They keep you accountable, provide meaningful discussion which can enhance comprehension, and help maintain regular study times. Forming the right group where everyone contributes is key.
- Taking effective notes helps you listen better, helps memory, and creates a valuable study guide. Note-taking methods include using lists, outlines, concept maps, and the Cornell method.
- This chapter contains numerous important study strategies such as the importance of attendance, regular study periods, time management, asking pertinent questions, summarizing, and reviewing. Taking inventory of the study skills that you should focus on and develop will help you to be more efficient with your time.