Chapter 4

Listening, Taking Notes, and Remembering

Figure 4.1

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Where Are You Now?

Assess your present knowledge and attitudes.

	Yes	Unsure	No
1. I am satisfied with my grades.			
2. I usually feel well prepared for classes.			
3. I usually understand what is going on in class.			
4. I find it easy to stay focused in class.			
5. I am not shy or self-conscious about asking questions.			
6. I learn from recorded lectures and podcasts.			
7. I take useful notes in class.			
8. I go to the instructor's office when I have a question about an assignment.			
9. I can successfully study for a test from the notes I have taken.			
10. I use different note-taking methods in different classes.			
11. I do not have trouble remembering facts and ideas.			
12. I retain useful information after an exam.			

Where Do You Want to Go?

Think about how you answered the questions above. Be honest with yourself. On a scale of 1 to 10, how would you rate your level of academic achievement at this time?

A poor student									An excellent student									
1		2		3		4		5		6		7		8		9		10

In the following list, circle the three most important areas in which you think you can improve:

- Preparing for class
- Taking notes on your laptop
- Listening in class
- Using different systems for note taking
- Using seat selection to your advantage
- Remembering facts and figures
- Listening to podcasts
- Remembering ideas and concepts
- Asking good questions
- Choosing a memory method that's right for you
- Taking notes on paper
- Using a memory system

Are there other areas in which you can improve your academic performance? Write down other things you feel you need to work on.

_____

_____

_____

_____

How to Get There

Here's what we'll work on in this chapter:

- Setting yourself up for success by following the learning cycle
- Listening actively
- Listening in class
- Asking good questions
- Taking effective notes
- Learning the principal note-taking methods
- Modifying your note-taking methods to meet your learning style and your instructor's approach to the material
- Understanding how your memory works
- Using your memory effectively
- Learning memory-building tips

This Is Not Like High School; This Is Not Like Work

As you embark on your college career, you have found yourself in an environment like no other. You soon will discover the new social structure, you may be invigorated by a new freedom, and you may be daunted by the number of options you have for activities. We cover these nonacademic aspects of college life starting in Chapter 9 "The Social World of College". But for now, consider some of the differences between college classes and what you likely were used to in high school. These differences are important because they demand you change your behavior if you want to be a successful student.

Table 4.1 Differences between High School and College Classes

In High School	In College
Your teacher would guide you and let you know when you were falling behind.	You are expected to take responsibility for your academic success.
Your teacher would take attendance and report you when you were absent; the	Your instructor rarely takes attendance but expects you to be in class and understand the material.

In High School	In College
teacher would help you make up the material you missed.	
Your teacher would write assignments on the board and remind you to complete them.	It is up to you to read, save, and follow the course syllabus and to know what material you must read and understand and by when. Since the syllabus makes this clear, instructors will rarely remind you of assignment due dates.
Each class would typically meet three to five times each week with minimal homework each night.	Each class meets less frequently but requires much more work from each student. You should generally count on doing two to three hours of studying for each hour of class. What seems like an eight-hour work day may quickly become fourteen hours or more of academic work. Take responsibility for budgeting your time and not falling behind. In college it is much harder to catch up if you do get behind.
High school teachers are passionate about guiding their students and teaching them to learn.	College instructors are often more passionate about their subject matter than they are about their teaching. But you can tap into their passion for what they are talking about and guide your own learning by asking questions, seeking advice during office hours, and participating in class discussions.
Daily homework assignments and unit quizzes contributed heavily to your grade. Oftentimes a teacher would offer extra credit opportunities to give students a chance to make up for lapses along the way.	Your grade in a course may be determined primarily by one or two exams and a long-term project or paper. A subpar performance on a single exam or paper can really drag your grades down. Identify the assignments on the syllabus and get to work on them early and consistently. Don't put off assignments or studying for tests until the last minute! In college, extra credit is not an option to fall back on!
You were told what you should study and when. You followed a predetermined curriculum set by state and local officials. Even your parents and guidance counselors had a major say in your "elective" choices.	You determine what you want to learn. It is your education—not someone else's. Find your passion and follow it! You will be a much better student if you do.

4.1 Setting Yourself Up for Success

LEARNING OBJECTIVE

1. Identify the roles of listening and note taking in the learning cycle.

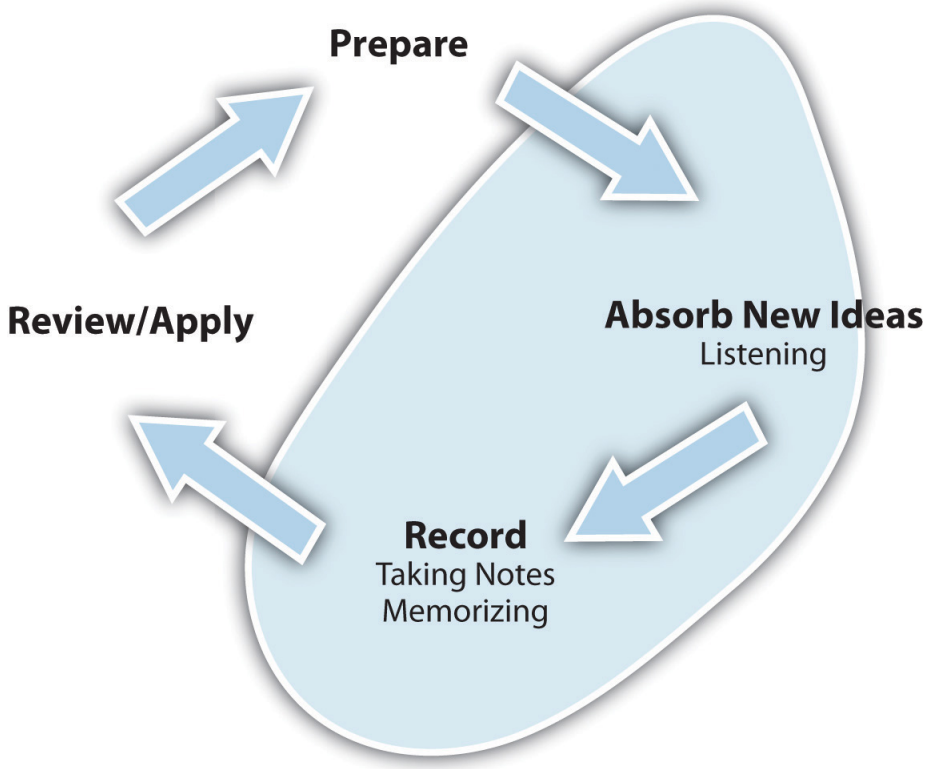
Too many students try to get the grade just by going to class, maybe a little note taking, and then cramming through the text right before an exam they feel unprepared for. Sound familiar? This approach may have worked for you in high school where tests and quizzes were more frequent and teachers prepared study guides for you, but colleges require you to take responsibility for your learning and to be better prepared.

Most students simply have not learned how to study and don't understand how learning works. As we discussed in Chapter 1 "You and Your College Experience", learning is actually a cycle of four steps: preparing, absorbing, capturing, and reviewing. When you get in the habit of paying attention to this cycle, it becomes relatively easy to study well. But you must use all four steps.

This chapter focuses on **listening**[1], a key skill for learning new material, and note taking, the most important skill in the capturing phase of the cycle. These skills are closely related. Good listening skills make you a better note taker, and taking good notes can help you listen better. Both are key study skills to help you do better in your classes.

1. Purposefully focusing on what a speaker is saying with the objective of understanding.

Figure 4.2 The Learning Cycle



KEY TAKEAWAYS

- College is very different from high school.
- You must take personal responsibility for your learning.
- Time management is crucial.
- Learning is a cycle of four steps: preparing, absorbing, capturing, and reviewing.

4.2 Are You Ready for Class?

LEARNING OBJECTIVES

1. Prepare for listening in class and taking notes.
2. Use a syllabus.

A professional athlete wouldn't take the field without warming up first. An effective student won't go to a class without preparing for it first. To get the most out of a class, you need to get yourself in the right frame of mind. This does not take a lot of time, but it greatly increases your ability to listen actively and take good notes.

Like a good athlete, first you need to get psyched. Clearly visualize your goals. Thinking about the following questions may help:

- What do I want to get out of the class?
- What is the main idea the class will cover?
- How will today's class help me do better in this course?

Go to class with confidence. The best way to achieve this is to start early and be sure you've completed any assignment the instructor gave you in the last class. Think about how today's material will tie into what you've already learned. You should also review the course **syllabus**[2] to see what the instructor expects to cover in the class and how it relates to what you have learned so far.

Be physically prepared, too:

- Make sure you are getting enough sleep and eating nutritious meals, including breakfast. It's hard to focus on learning when you're hungry.
- Make sure you have all materials you'll need for class (paper, pens, laptop, books, etc.).
- Be punctual. Give yourself plenty of time to get into your seat and organize your space. If you are late, you'll struggle to get into the right mind-set for listening, and you won't feel in control of your learning as you try to catch up with the class. If you're tardy, you also create a distraction for your classmates—and the instructor, who will take notice!

2. An outline of the course from the instructor, which covers the course objectives, the material to be covered in each class, and often assignments.

- Clear away all other distractions before the instructor starts. Remember that putting your cell phone on "vibrate" may still distract you—so turn it off, all the way off.

Now, take a deep breath, focus on the instructor, and listen and learn!

KEY TAKEAWAYS

- To get the most out of a class, get yourself in the right frame of mind.
- Clearly visualize your goals and approach the class with confidence.
- Be physically prepared: rested, punctual, and not distracted.

4.3 Are You Really Listening?

LEARNING OBJECTIVES

1. Listen actively in social situations and in class environments.
2. Apply strategies that make listening more effective.
3. Ask good questions.

Are you a good listener? Most of us like to think we are, but when we really think about it, we recognize that we are often only half listening. We're distracted, thinking about other things, or formulating what we are going to say in reaction to what we are hearing before the speaker has even finished. Effective listening is one of the most important learning tools you can have in college. And it is a skill that will benefit you on the job and help your relationships with others. Listening is nothing more than purposefully focusing on what a speaker is saying with the objective of understanding.

This definition is straightforward, but there are some important concepts that deserve a closer look. "Purposefully focusing" implies that you are actively processing what the speaker is saying, not just letting the sounds of their voice register in your senses. "With the objective of understanding" means that you will learn enough about what the speaker is saying to be able to form your own thoughts about the speaker's message. Listening is an active process, as opposed to hearing, which is passive.

You listen to others in many situations: to interact with friends, to get instructions for a task, or to learn new material. There are two general types of listening situations: where you will be able to interact freely with the speaker (everyday conversations, small discussion classes, business meetings) and where interaction is limited (lectures and Webcasts).

In interactive situations, you should apply the basic principles of **active listening**[3] (see "Principles of Active Listening"). These are not hard to understand, but they are hard to implement and require practice to use them effectively.

3. A strategy for listening effectively in interactive situations by focusing on what is being said, confirming that you heard the right message, asking for any needed clarification, watching for nonverbal messages, and listening for requests.

Principles of Active Listening

1. Focus on what is being said. Give the speaker your undivided attention. Clear your mind of anything else. Don't prejudge. You want to understand what the person is saying; you don't need to agree with it.
2. Repeat what you just heard. Confirm with the speaker that what you heard is what he or she said.
3. Ask speaker to expand or clarify. If you are unsure you understand, ask questions; don't assume.
4. Look for nonverbal signals as well as the words used. Nonverbal messages come from facial expressions, body positioning, arm gestures, and tone of voice. Confirm these body language messages just as you would verbal messages by saying, for example, "You seem very excited about this idea."
5. Listen for requests. A speaker will often hide a request as a statement of a problem. If a friend says, "I hate math!" this may mean, "Can you help me figure out a solution to this problem?"

ACTIVITY: LISTENING WITH YOUR WHOLE BODY

Think of a person you consider an excellent listener. Picture that person clearly in your mind. Focus on what she does, not what they she is saying. Describe what actions and postures she uses to show she is listening. Put this list on the left-hand side of the page.

Think of a person you consider a poor listener. Picture that person clearly in your mind. Focus on what he does, not what he is saying. Describe what actions and postures he uses to show he is not listening. Put this list on the right-hand side of the page.

Now compare these lists with your own behavior. How many of the body language signals from each side do you think you exhibit? How can you add more of the left column's attitudes and actions to your own behaviors? How can you control those behaviors you recognize in yourself from the right column?

Listening in a classroom or lecture hall to learn can be challenging because you are limited by how—and how much—you can interact with an instructor during the class. The following strategies help make listening at lectures more effective and learning more fun.

1. **Get your mind in the right space.** Prepare yourself mentally to receive the information the speaker is presenting by following the previous prep questions and by doing your assignments (instructors build upon work presented earlier).
2. **Get yourself in the right space.** Sit toward the front of the room where you can make eye contact with the instructor easily. Most instructors read the body language of the students in the front rows to gauge how they are doing and if they are losing the class. Instructors also believe students who sit near the front of the room take their subject more seriously and are more willing to give them help when needed or to give them the benefit of the doubt when making a judgment call while assigning grades.
3. **Focus on what is being said.** Eliminate distractions. Turn your cell phone off and pack it away in your backpack. If you are using your laptop for notes, close all applications except the one that you use to take notes. Clear your mind and keep quiet. Listen for new ideas. Think like an investigative reporter: you don't just want to accept what is being said passively—you want to question the material and be convinced that it makes sense.
4. **Look for signals.** Each instructor has a different way of telling you what is important. Some will repeat or paraphrase an idea; others will raise (or lower) their voices; still others will write related words on the board. Learn what signals your instructors tend to use and be on the lookout for them. When they use that tactic, the idea they are presenting needs to go in your notes and in your mind—and don't be surprised if it appears on a test or quiz!
5. **Listen for what is not being said.** If an instructor doesn't cover a subject, or covers it only minimally, this signals that that material is not as important as other ideas covered in greater length.
6. **Sort the information.** Decide what is important and what is not, what is clear and what is confusing, and what is new material and what is review. This mental organizing will help you remember the information, take better notes, and ask better questions.
7. **Take notes.** We cover taking notes in much greater detail later in this chapter, but for now think about how taking notes can help recall what your instructor said and how notes can help you organize your thoughts for asking questions.
8. **Ask questions.** Asking questions is one of the most important things you can do in class. Most obviously it allows you to clear up any doubts

you may have about the material, but it also helps you take ownership of (and therefore remember) the material. Good questions often help instructors expand upon their ideas and make the material more relevant to students. Thinking through the material critically in order to prepare your questions helps you organize your new knowledge and sort it into mental categories that will help you remember it.

A note about tape-recording lectures: You may want to record a lecture to double-check what you heard in class, but it's usually not a good idea. Depending on a recording may lead you to listen less effectively and think less actively. Additionally, many instructors do not allow students to record their lectures, so recording is usually not even an option.

Dealing with Special Listening Challenges

What to Do If...

- **Your instructor speaks too fast.** Crank up your preparation. The more you know about the subject, the more you'll be able to pick up from the instructor. Exchange class notes with other students to fill in gaps in notes. Visit the instructor during office hours to clarify areas you may have missed. You might ask the instructor—very politely, of course—to slow down, but habits like speaking fast are hard to break!
- **Your instructor has a heavy accent.** Sit as close to the instructor as possible. Make connections between what the instructor seems to be saying and what he or she is presenting on the board or screen. Ask questions when you don't understand. Visit the instructor during office hours; the more you speak with the instructor the more likely you will learn to understand the accent.
- **Your instructor speaks softly or mumbles.** Sit as close to the instructor as possible and try to hold eye contact as much as possible. Check with other students if they are having problems listening, too; if so, you may want to bring the issue up with the instructor. It may be that the instructor is not used to the lecture hall your class is held in and can easily make adjustments.

Now That's a Good Question...

Are you shy about asking questions? Do you think that others in the class will ridicule you for asking a dumb question? Students sometimes feel this way because they have never been taught how to ask questions. Practice these steps, and soon you will be on your way to customizing each course to meet *your* needs and letting the instructor know you value the course.

- **Be prepared.** Doing your assignments for a class or lecture will give you a good idea about the areas you are having trouble with and will help you frame some questions ahead of time.
- **Position yourself for success.** Sit near the front of the class. It will be easier for you to make eye contact with the instructor as you ask the question. Also, you won't be intimidated by a class full of heads turning to stare at you as you ask your question.
- **Don't wait.** Ask your questions as soon as the instructor has finished a thought. Being one of the first students to ask a question also will ensure that your question is given the time it deserves and won't be cut short by the end of class.
- **In a lecture class, write your questions down.** Make sure you jot your questions down as they occur to you. Some may be answered in the course of the lecture, but if the instructor asks you to hold your questions until the end of class, you'll be glad you have a list of the items you need the instructor to clarify or expand on.
- **Ask specific questions.** "I don't understand" is a statement, not a question. Give the instructor guidance about what you are having trouble with. "Can you clarify the use of the formula for determining velocity?" is a better way of asking for help. If you ask your question at the end of class, give the instructor some context for your question by referring to the part of the lecture that triggered the question. For example, "Professor, you said the Union troops were emboldened by Lincoln's leadership. Was this throughout the Civil War, or only after Gettysburg?"
- **Don't ask questions for the sake of asking questions.** If your question is not thought out, or if it appears that you are asking the question to try to look smart, instructors will see right through you!

KEY TAKEAWAYS

- In all interactive learning situations, apply the basic principles of active listening.
- Focus on what is being said, confirm that you heard the right message, ask for any clarification you need, watch for nonverbal messages, and listen for requests.
- Specific strategies are helpful for listening well in a lecture hall.
- Be ready to compensate if your instructor speaks too fast, has a heavy accent that makes understanding difficult for you, or speaks too softly.
- Don't be shy about asking questions. Asking questions is easier when you are prepared and positioned for success.

CHECKPOINT EXERCISES

1. List two things you should do before the class to prepare yourself for active listening.

   _____

   _____

2. Where should you sit in the classroom? Why?

   _____

   _____

3. What are some of the ways instructors signal important material?

   _____

   _____

   _____

4.4 Got Notes?

LEARNING OBJECTIVES

1. Explain why taking notes is important.
2. Use the four primary methods of note taking: lists, outlines, concept maps, and the Cornell method.
3. Define which methods support your learning style and the instructor's teaching style.
4. Apply strategies to make note taking more effective.
5. Use some effective strategies if you happen to miss a class.
6. Organize your notes into effective study guides.
7. Use teacher handouts to complement your notes.
8. Determine what to do with your notes after the course is complete.

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, these approaches will not work. In college, 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 college. Your notes are your road maps for these thoughts. Do you take good notes? After learning to listen, note taking is the most important skill to ensure your success in a class.

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

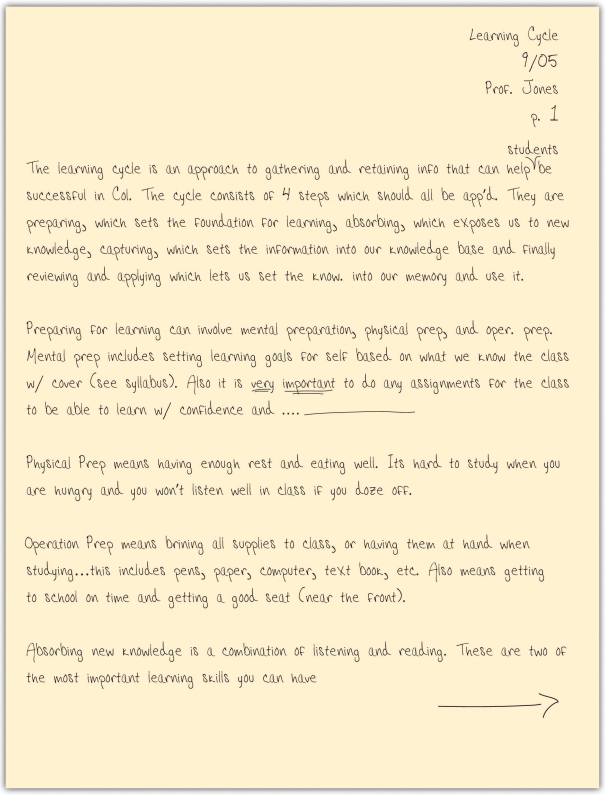
own style, but you should also be ready to modify it to fit the needs of a specific class or instructor. To be effective, all of these methods require you to listen actively and to think; merely jotting down words the instructor is saying will be of little use to you.

Table 4.2 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 center 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.
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 colleges recommend using some form of the Cornell method.

The List Method

Figure 4.3 *The List Method of Note Taking*



Learning Cycle
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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 preparations, physical preps 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.

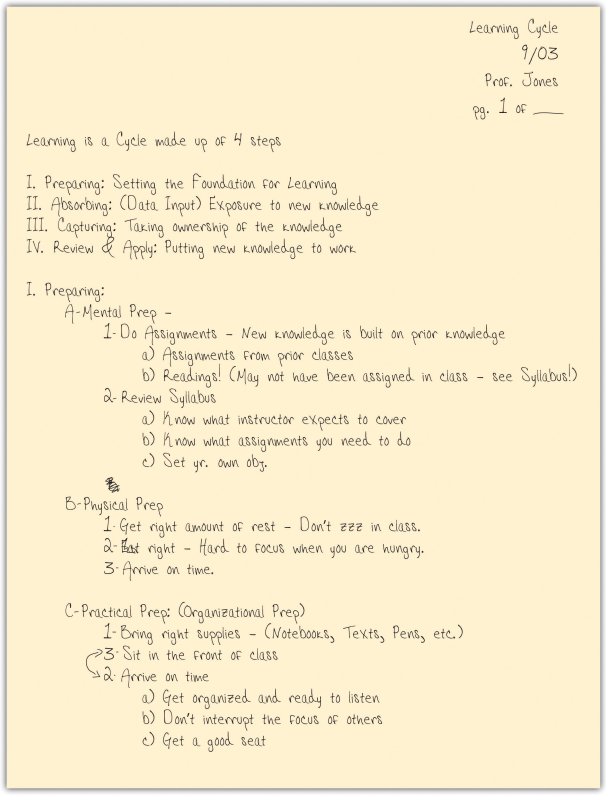
Operation Prep means bringing all supplies to class, or having them at hand when studying...this includes pens, paper, computer, text book, etc. Also means getting to school on time and getting a good seat (near the front).

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

Figure 4.4 *The Outline Method of Note Taking*



Learning Cycle
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Learning is a Cycle made up of 4 steps

I. Preparing: Setting the Foundation for Learning
II. Absorbing: (Data Input) Exposure to new knowledge
III. Capturing: Taking ownership of the knowledge
IV. Review & Apply: Putting new knowledge to work

I. Preparing:
- A-Mental Prep -
  - 1-Do Assignments - New knowledge is built on prior knowledge
    - a) Assignments from prior classes
    - b) Readings! (May not have been assigned in class - see Syllabus!)
  - 2-Review Syllabus
    - a) Know what instructor expects to cover
    - b) Know what assignments you need to do
    - c) Set yr. own obj.
- B-Physical Prep
  - 1-Get right amount of rest - Don't zzz in class.
  - 2-Eat right - Hard to focus when you are hungry.
  - 3-Arrive on time.
- C-Practical Prep: (Organizational Prep)
  - 1-Bring right supplies - (Notebooks, Texts, Pens, etc.)
  - 3-Sit in the front of class
  - 2-Arrive on time
    - a) Get organized and ready to listen
    - b) Don't interrupt the focus of others
    - c) Get a good seat

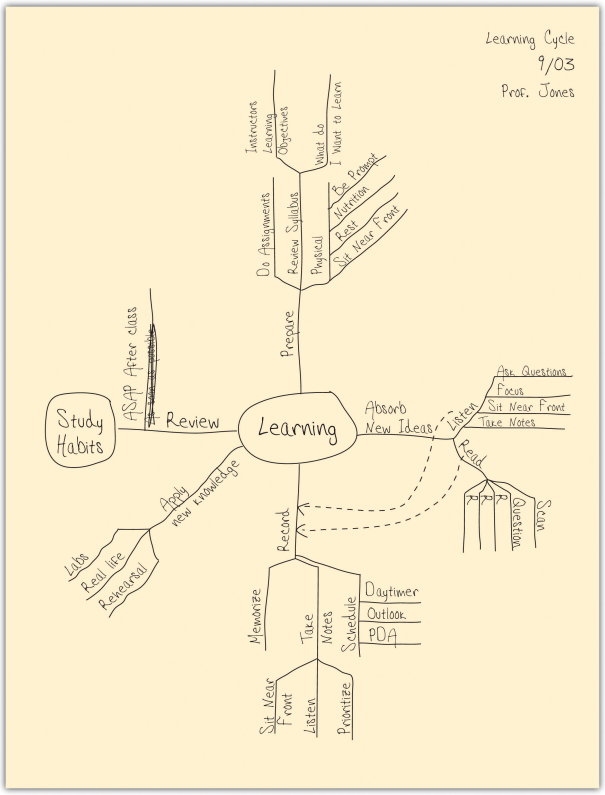
The advantage of the outline method is that it allows you to prioritize the material. Key ideas are written to the left of the page, subordinate ideas are then indented, and details of the subordinate ideas can be indented further. To further organize your ideas, you can use the typical outlining numbering 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

Figure 4.5 *The Concept Map Method of Note Taking*



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).

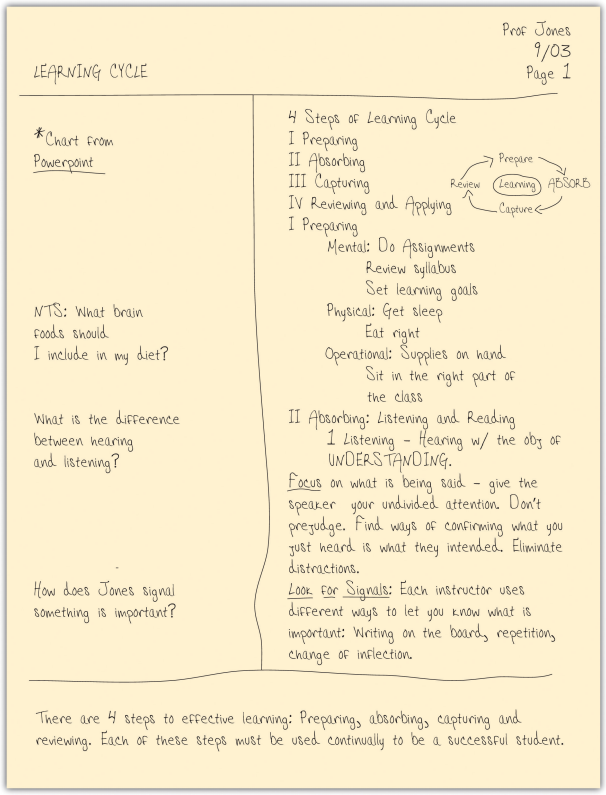
To develop a concept map, start by using your syllabus to rank the ideas you will listen to by level of detail (from high-level or abstract ideas to detailed facts). Select an overriding idea (high level or abstract) from the instructor’s lecture and place it in a circle in the middle of the page. Then 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

Figure 4.6 *The Cornell Method of Note Taking*



The **Cornell method**[4] was developed in the 1950s by Professor Walter Pauk at Cornell University. It is recommended by most colleges 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.

4. A classic method of taking organized class notes using a two-column approach that highlights key ideas.

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 afterward. 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 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 the 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 colored 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.** Which ones you use is 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 color 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.

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 here.

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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 college, 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. (See studying with others in Chapter 6 "Preparing for and Taking Tests".)

- 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.

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

- After effective listening, good note taking is the most important skill 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.

CHECKPOINT EXERCISES

1. Name two advantages of the Cornell system over the list method of note taking.

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2. Describe the benefits of—and potential problems with—taking class notes on a laptop.

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3. List at least three ways to make up for missing notes because you miss a class.

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4.5 Remembering Course Materials

LEARNING OBJECTIVES

1. Identify what is important to remember.
2. Understand the difference between short- and long-term memory.
3. Use a variety of strategies to build your memory power.
4. Identify the four key types of mnemonic devices.
5. Use mnemonics to remember lists of information.

Up to now we have covered how to capture material in your notes. The rest of this chapter is dedicated to strategies for recording ideas and facts in your memory.

The Role of Memorization in Learning

Have you ever gone into an exam you have studied for and drawn a blank on a particular question? Have you ever walked into a room only to forget for a moment why you went there? Have you ever forgotten where you left your keys? How about finding yourself in a conversation with someone whose name you can't remember? The fact is, memory fails everyone from time to time. It is not surprising that students, with a huge amount of information they must commit to memory (not to mention frequent distractions and interruptions), are often frustrated by their memory.

Let's start by taking some of the pressure off you. You will not be required to memorize everything your instructor says in a class—nor should you try to. There is way too much to capture. People speak at a rate of 100 to 150 words per minute. An average 50-minute lecture may contain around 7,500 words. By listening effectively and taking notes, your job is to distill the main ideas and a few keywords. *These* are the things you should choose to memorize.

In your early and high school education, memorization was a key aspect of learning. You memorized multiplication tables, the names of the states, and vocabulary words. Memorized facts ensured your success on multiple-choice questions. In college, however, most of your work is focused on understanding the material in depth. Remembering the year of the 9/11 attack (2001) is far less important than grasping the impact of that attack on American foreign policy. Understanding themes and ideas and being able to think critically about them is really the key to your success in college learning. For more on critical thinking skills, see Chapter 3

"Thinking about Thought". Although memorization is not the primary key to success, having a good memory is important to capture ideas in your mind, and it helps tremendously in certain subjects like sciences and foreign languages.

How Memory Works

Memory[5] is the process of storing and retrieving information. Think of a computer. In many ways it is an electronic model of the human memory. A computer stores, retrieves, and processes information similarly to how the human mind does. Like the human version, there are two types of memory: short-term or active memory (RAM in the computer) and long-term or passive memory (the computer's hard drive). As its name suggests, short-term or active memory is made up of the information we are processing at any given time. Short-term memory involves information being captured at the moment (such as listening in class) as well as from information retrieved from our passive memory for doing complex mental tasks (such as thinking critically and drawing conclusions). But short-term memory is limited and suffers from the passing of time and lack of use. We begin to forget data within thirty seconds of not using it, and interruptions (such as phone calls or distractions) require us to rebuild the short-term memory structure—to get "back on task." Learn more about multitasking in Chapter 6 "Preparing for and Taking Tests". To keep information in our memory, we must either use it or place it into our long-term memory (much like saving a document on your computer).

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

5. The process of storing and retrieving information.

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 colorful—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. Multitasking—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.

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 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				Pen
Chowder				Maple
Airplane				Window
Kirk				Scotty
Paper clip				Thumb drive
Column				Brownies
Oak				Door
Subway				Skateboard
Leia				Cedar
Fries				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				Skateboard
Chowder				Subway
Brownies				Luke
Paper clip				Leia
Pen				Kirk
Thumb drive				Scotty
Oak				Column
Cedar				Window
Maple				Door
Airplane				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 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**[6] (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[7] 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. 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[8] 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):

6. Tricks for memorizing lists and data.
7. A word formed from the initial letters of words in a phrase or series of words, such as "USA" for "United States of America."
8. A mnemonic method in which words in a sentence or phrase work as memory aids for something beginning with the same first letters in the acrostic.

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[9] 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[10] 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.

9. Short verses used to remember data.

10. A phrase that is set to music and is easy to remember.

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.

KEY TAKEAWAYS

- Understanding ideas is generally more important in college than just memorizing facts.
- 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.

CHECKPOINT EXERCISE

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

T	F	Preparing for class is important for listening, for taking notes, and for memory.
T	F	Multitasking 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.

4.6 Chapter Activities

Chapter Takeaways

Listening

- Learning involves following a cycle of preparing, absorbing, recording, and reviewing.
- The most important difference between high school learning and college learning is that colleges expect you to take full responsibility for your learning. Many of the support mechanisms you had in high school do not exist in college.
- Listening takes place in two primary situations: where there can be open interaction with the speaker (social conversation, small group discussions, business meetings, and small classes) and where there is limited interaction with the speaker (lectures, online courses, and podcasts).
- In situations where interaction is allowed, active listening principles work well.
- In lecture situations, additional strategies are required. They include physical preparation, seating for listening, eliminating distractions, thinking critically about the material as it is presented, taking notes, and asking appropriate questions.
- Prepare for listening by completing all assignments for the class and reviewing the syllabus. Ask yourself what you expect to gain from the class and how that ties in to the rest of the course material.
- Think critically about what you are listening to. Do you agree with what the instructor is saying? How does it tie to the rest of the material in the course? What does this new material mean to you in "real" life?

Note Taking

- There are four primary ways of taking notes (lists, outlines, concept maps, and the Cornell method).
- Select the note-taking method that best serves your learning style and the instructor's teaching style. Remember that methods may be combined for maximum effect.
- Completing assignments and reviewing the syllabus can help you define the relative importance of the ideas the instructor presents.
- Don't expect to capture everything the instructor says. Look for keywords and central ideas.
- Anything the instructor writes on the board is likely to be important.
- Review your notes as soon as possible after the class, to annotate, correct, complete, and summarize.

Memory

- The two types of memory are short-term memory, which allows you to apply knowledge to a specific task, and long-term memory, which allows you to store and recall information.

- The brain commits information to long-term memory by creating an intricate system of links to that information. Strength, number, and variety of links all lead to better recall.
- To create strong links, start by making a conscious decision to want to commit something specific to memory. Link the information to real life and other data from the course. Group like information into “buckets” that create links among the terms you want to remember.
- Use the information. The more you use the information, the more you will activate the links in your brain.
- Eliminate distractions. Every time you are diverted from your task, you need to reboot your short-term memory, weakening the links.

CHAPTER REVIEW

1. Describe the four steps of active listening.

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2. How is listening defined?

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3. List three things you should do to prepare to listen in class.

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4. Where should you sit in a class? Why?

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5. What should you do with your notes soon after each class?

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_____

6. Why do you think the Cornell method of note taking is recommended by so many colleges?

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7. How do short-term and long-term memory differ?

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8. List three ways in which you can create links to help remember ideas.

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9. Why is multitasking dangerous to memorization?

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10. What is a mnemonic?

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_____

MAKE AN ACTION LIST

Two things I will do to improve	Action	By when I expect to take the action	How I will know I accomplished the action
My listening	1.		
	2.		
My note taking	1.		
	2.		
My memory	1.		
	2.		