Dr. Morgan's List of Learning Strategies and how to use them

The "What"	The "Why"
• Teach Someone Else (Or Just Pretend To)	• Research has found that when we teach other people what we are learning, it allows the brain to continue to think about the information, but put into your own words. This act of repetition and manipulation of the material increases the internal neural connections related to the material and enhances our ability to recall it later. • Bonus points if the person asks you questions and makes you think about the information in new ways.
• The Rubber Ducky	• This is a coding techniques developed by (Andrew Hunt and David Thomas, in the book *The Pragmatic Programmer*). This programming technique is used for coding, and encourages the programmer to explain a code to a rubber ducky, line by line, when struggling. • For the sake of a learning exercise, this technique can be used when having to learn/explain something very difficult. By talking out loud, and working through a problem step by step, it allows us to recognize potential errors/problems that we may not have recognized while working on something silently. • This technique is similar to teaching someone else what you've learned, but could be more effective for activities that involve creation, oral presentation, or collaborative work.
• Learn in Short Bursts of Time. ...	• Our brains were not inherently designed for long-term sustained attention. We know that during a single day, we have (to varying degrees) a limited about of information that we can take in, and expect to be consolidated to long-term memory. • In order to respect the limits of the brain's potential, it helps to learn in smaller/concentrated periods of time, and then engage in other activities that do **not** involve new active learning.
• Learn In Short Bursts of Time (cont.) Example o The Pomodoro Method	• One example of this is the "Pomodoro" method.

	• Make a list of the 2-3 MOST important things to complete during a period of time. Them prioritize them in order. • Decide on a single task that you want to focus on for at least 25 minutes. If you have a lot to study, pick a section that you can focus on with intensity for that period of time. • Set a timer for 25 minutes. This unit of time is a "pomodoro". This unit cannot be broken up into parts. Either a use of time is "one" or "none". Set a timer when you begin. • Focus on that singular task for that length of time. If you are interrupted (by something within your control) or your attention deviates significantly, start the pomodoro over. It does not count in regards to keeping track of how many you complete. • Once you complete a pomodoro, take a break! Doing something fun, mindless, enjoyable (for about 5-10 minutes). **Set an alarm if you know it will be hard to transition back to work.** • After your break, start a new pomodoro, and continue this process until the task is complete. • Once you complete the first item on the list, continue the process with the 2nd and 3rd items. • Keep track of how many you complete, in order to give yourself credit each day.
• Take Notes By Hand. ...	• Taking notes by hand has been found by research to be a more effective method of retention vs. typing notes out. • The reason for this is in part due to the nature of using multiple methods of sensory acquisition (tactile, visual, audio) while also controlling the pace of the information being brought into memory. • One aspect of note-taking (regardless of how you do it) is that it is important to take notes "in your own words". Meaning, don't just repeat what you're hearing/reading. Make it your own.
• Use The Power of Mental Spacing.	• While most college students are familiar with the idea of "cramming", less are familiar with the strategy of "distributed learning". • Distributed Learning is the idea of breaking studying down into chunks, and studying the

	material in smaller chunks over time, (Such as an hour a day for 10 days) vs. 10 hours on the day before the test. • Research has found that we tend to remember information more effectively through the use of this skill when the goal is to consolidate information into long term memory. • **Cramming CAN be effective for short-term recall, however, the information we cram is not maintained in long-term memory as well by comparison.
• Take A Study Nap. ...	• The brain uses sleep as a means of consolidating information from short-term to long-term memory. • Taking a short name (usually 20-30 minutes) can help give the brain time to transition information from short-term to long-term memory. • Try to avoid napping for longer periods of time during the day (unless you're sick), due to the negative impact it can have on consistent nightly sleep (which plays a crucial part of retaining information and preparing the brain for learning the next day).
• Change It Up.	• While there is a benefit to attention/focus when we setup one space to work on projects/homework, research has shown that "changing it up" while studying or reviewing new material promotes higher retention of new information. • The brain is constantly taking in new sensory information and linking that with what we are directing our attention too. Researchers theorize that the act of studying in multiple environments allows the brain to "link" new knowledge with a broader range of material, making it easier to access in the future.
• "Pause and Reflect"/Quick Write	• In order to help your brain organize information more effectively, it can be beneficial to take a break from studying/listening to a lecture (if pausing is an option) to summarize the general information you just reviewed, in your own words. Research has found that the more time we spend "playing with" new information, the easier it will be to recall.

• Chunking	• Chunking is a common learning skill that takes larger groupings of information and breaks them down into small “chunks” for more effective memorization. • A common example of this is being asked to remember a number, say 8305572203 • That might be really hard for most people to do. However, if we “chunk” it, we could make it look like (830) 557-2203. • Through making it look like a phone number, we can set it into blocks of information that can be accessed with greater ease.
• Make a Story	• When you have to remember processes that involve change or development over time, one common learning strategy involves turning it into a story. • Our brains are organized in ways that look for patterns and meaning. By taking a common story and working in the developmental stages/changes into the narrative with consistent steps we are familiar with, we can then walk through the elements of the story and link them with the information that we hope to recall. • By taking a familiar story arc and “pairing” it with stages of information, we can then use the familiar story as an anchor to recall parts of information that become linked.
• (Partner) Jigsaw a concept	• This took requires the use of a friend or study partner. • Each of you takes part of one concept or idea and works on it individually over time. • After spending an agreed upon time working on the parts, each person explains their part, sequentially. • Both members then devote time to exploring what was left out, what is unanswered, and how to link the two bodies of information together into one full picture. • Doing this utilizes “teaching others”, as well as the elaboration and “playing with” concepts mentioned in other sections. By joining together on finding the missing pieces, you also increase the likelihood that the information will be more effectively stored by further elaborating and adding context to the memories.
