

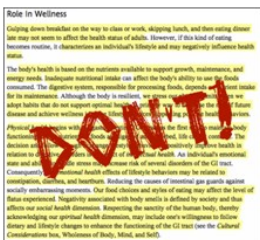
STUDY TIPS

LEARNING HOW TO STUDY IS JUST AS IMPORTANT AS ATTENDING YOUR CLASSES. HERE ARE SOME SCIENTIFICALLY SUPPORTED STUDY TIPS FOR BEST RESULTS!



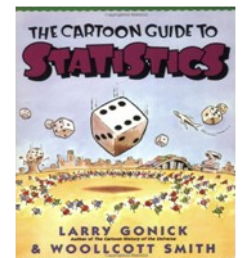
Learn in memorable **BUNCHES**: A good memory is like a well-organized and well-maintained filing system. **College students can remember only about 7 separate items from one presentation.** To break this barrier information must be classified, organized or categorized into natural bunches. Small memorable bunches of information can then be tied together into ever larger bunches, all of associated material.

SPREAD your study time - don't cram! Distributing learning over time is much more effective and the best way is to review all your material days apart. **Students recalled 10% more material after spaced study than crammed study.** To remember something for one week, space your learning episodes 12-24 hours apart, [but if you want to remember something for five years, space the learning 6-12 months apart]. Spacing allows your brain to retain fundamental concepts important to **ADVANCED** knowledge.



Are your books full of **HIGHLIGHTED** sections? Sad to say, highlighting alone does nothing to improve your memory of facts. But **recopying (paraphrasing while you write) your notes will get you high marks.** Highlighting is passive, but recopying engages more of your brain, creating connections that strengthen memory.

Having trouble with **STATISTICS**? Here's a recommended book: *Cartoon Guide to Statistics*. In fact, **graphic guides are available for all kinds of subjects**, making it fun to learn about hard topics.



NAP: A quick nap has been shown to make newly formed memories "stick" better. Equally effective for learning lists of words as it is for learning to play an instrument.



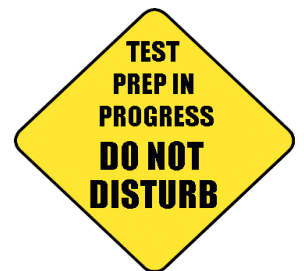
Beware of the all-nighter and get your **SLEEP!** A good night's sleep allows your brain to disconnect, freeing it from the "tyranny" of the present. The disconnection creates the best environment for integrating and consolidating memories. By the way, **you can't fool your brain - if it needs sleep it will go to sleep; small chunks of your brain will take naps without giving you any notice.** Who knows how many mistakes and errors in judgment are made because of the local sleep in brains of tired students who think that they are fully awake and in control!

Frustrated with **MATH, CHEMISTRY AND PHYSICS PROBLEMS?** Make sure that you have learned the basic strategies for solving problems. Here's one more: if it is a complicated problem, create a simpler version of the problem and solve it instead. And always write it out.



Use your **HANDS:** There is a close linkage between the hand and the mind. **Writing things out rather than typing may lead to longer-term memories.** Why? Possibly because seeing handwriting elicits motor activity in the brain, engaging your brain more actively in the learning process. In other words, at the neurological level, a scripted letter is both visual *and* physical. Rereading your handwritten notes activates the neurological instructions for penning it; the act of reading the letters replays them anew in the mind. This doesn't happen with type.

TEST yourself! Testing and quizzing yourself is the *gold star winner for best way to study* -that's what the research shows. Here's the best way how: **Test yourself before you study for an exam, or even before the class itself.** Likely, you won't do so well. But studies have shown that students who did this testing recalled more information a week later than students who were given the same test questions and told to memorize them. Sounds counterintuitive? It appears that trying and failing to recall is key. If you don't have a practice test, try using the questions often found at the end of the textbook chapters. Take your best guess, then look up the real answer and you may never forget it.



More about **QUIZZING** yourself: **The cognitive process of retrieval helps to cement your memory and also gives you a good indication of how much you know and how much more time you need to spend studying.** How to do it: use flash cards (physical or digital), answer sample questions, or take a notebook and divide each page in half and write questions on one side and answers on the other-cover the answers and start testing yourself at any time, in the bus on the way home, during lunch, while walking to class!

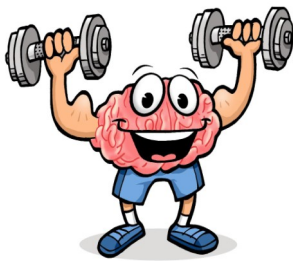
REPEAT FREQUENTLY: In one study students who repeatedly self tested had a recall of 80% as opposed to only 36% with studying alone. This only works if you take the time to find the correct answers of course!





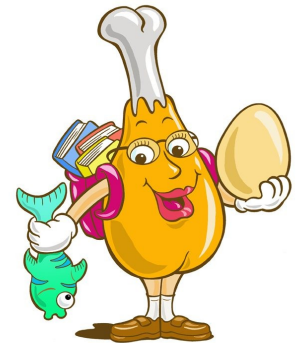
EXPLAIN and ASSOCIATE: Ask yourself "What new information does this sentence provide for me?" "How does it relate to what I already know?" **Similar to the interrogation process, self explanation and association helps to integrate new information.**

Do you reread over and over again? That is a passive method shown to be ineffective in memory retention. Instead, **INTERROGATE** yourself: Humans are always looking for explanations. **So as you study ask yourself questions such as: "Why does it make sense that...?", or simply "Why is this true?"**



EXERCISE!! Take a walk outside to get some Vitamin D (affects mood) and send more oxygen to your brain. **Regular exercise improves cognitive function, memory, and student grades!** Even rats' brainpower is improved by exercise: when given toys, foods, smells, and a running wheel, rats did better on cognitive tests only after the exercise wheel (fun study conducted at the University of Chicago). By the way, exercise works cumulatively affecting neuron health long-term.

EAT PROTEIN: Protein provides the brain with the necessary amino acids needed to create neurotransmitters. **Neurotransmitters can motivate, sedate and help you focus.** High protein, low carbohydrate, foods that are likely to jumpstart the brain are seafood, soy, meat, eggs, and dairy. High carbohydrate, low protein foods that are likely to relax the brain include: chocolate, pastries and desserts, bean burritos, nuts and seeds, and legumes. So eat more protein to help the brain stay alert and focused while you study. If you are feeling anxious, eat a piece of dark chocolate instead.



TWEETING (but not during class!) as part of your class work leads to increased engagement with course material and getting better grades.

FINALLY: Many of the tips above urge you to be **active learners!** Why? Because you remember only 10% of what you read, but a whopping 70-90% of what you say and do! The more engaged you are with the material the more you will commit to memory.

Sources:

Scientific American; August 2013

Scientific American Mind; September/October 2013

The Franklin Institute <http://www.fi.edu/learn/brain/proteins.html>

