Modes of thinking

Focused mode is when we focus intently on something. The focused mode is centered in the prefrontal cortex and often seems to involve thinking about things you are somewhat familiar with. Like solving a multiplication problem or trying to find a word that rhymes with another.

Diffuse mode is a more relaxed style of thinking. It allows for more broad ways of thinking. If you are trying to solve or figure out something new, it often cries for the diffuse mode of thinking. We access the diffuse mode quite naturally when we do things like taking a walk, a shower or simply just drift of to sleep. Neural processing can take place, often below conscious awareness in the diffuse mode

Memory

Practice and repetition help enhance and strenthen the neural structures as we are learning something new

There are two types of memory: **long term** and **working memory**

Working memory is like a not so very good blackboard

Long term memory is like a storage warehouse

Procrastination

Pomodoros

Pomodoros are 25 minute stretches of time followed by 5 minute breaks

Pomodoros allows us to focus on process rather than product

Excercise, Sleep, and Diet

Sleeping (brain cells shrinks) enables the brain to wash away the toxins developed during the day which enables to focus and think more intently.

Motivation and self-discipline

Eat your frogs first. Start the day by doing the most troublesome tasks.

Online Resources

www.cheatography.com

www.memrise.com

http://betterexplained.com/

Studying

Aim for **deliberate practice**. Don't work on the easy, work with the hard concepts.

Analogy, Diagram, Example, Plain English, Technical Description

Presentations

Overlearning (preferably not in a single session) helps with anxiety due to public speaking. The average TED talker spends 70 hours prepping for their 20 min speech.

Test Taking Skills

Cover up the answers to multiple-choice questions and try to recall the requested information

Have a Plan B (i.e. different career path) to reduce stress over the potential success/failure of the test

Shift your thinking from "This test is making me nervous" to "This test has made me excited to do my best"

Take ten deep breaths while the test is handed out to help reduce the flight or fight response triggered by cortisol

Start the test by taking a hard question. If you do not manage to complete it within one or two minutes jump to an easy question. Then do a hard one. Repeat. Doing so allows your diffuse mode to continue working on the problematic solutions meaning you may have new insights/potential solutions later when you get back to the hard questions

Test Taking Skills (cont)

If you work the test from front to back, check the work from towards the back to the front

Essay Writing

Research

It's pretty important to find a good textbook. Check course web pages at top universities and see what's assigned. MIT OCW has a comprehensive collection of course reading lists.

Lecture notes are posted online for a lot of courses, especially on MIT OpenCourseware. The notes are often more concise than textbooks, but not always as polished.

Unless you're actually doing research in a particular field, you probably won't want to read the most bleeding edge papers. The topics are naturally the least well understood, and most papers are not optimized for readability.

Look for highly cited papers. While citation counts are deeply flawed in a lot of ways, they provide a rough measure of impact, and highly cited papers are, on average, considerably more readable than a random paper

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