



How to Learn Anything

Taken from Teach Students how to
Learn by Sandra McGuire

High School

- What did your high school teacher do the class period before the test?
 - They gave is a review
- What did they do during the review?
 - They told us what questions were going to be on the test and gave is the answers
- Results
 - You did not have to study
 - You did not learn much
 - You did not learn how to learn

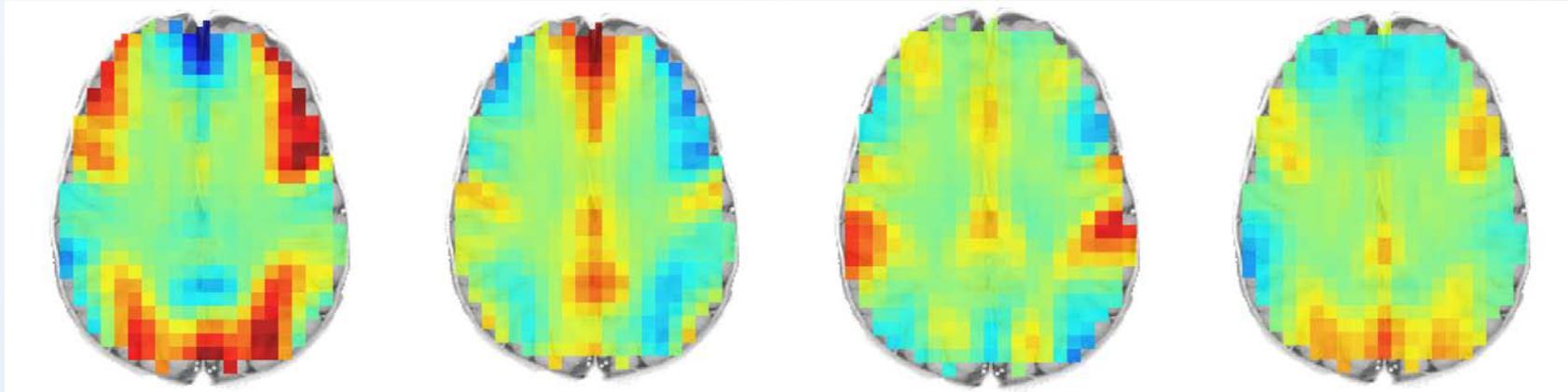


Its All About THINKING

- My goal is for you to become expert organic chemistry problem solvers.
- I will spend a LOT of time showing you how I THINK about organic chemistry
 - "It is not so very important for a person to learn facts, for that he doesn't really need a college education, for he can learn them from books. The value of education is not the learning of many facts but the training of the mind to think - something that cannot be learned from books." --Albert Einstein



Your Brain on Problem Solving



- Your brain and my brain are most challenged when conceptualizing and planning solutions

Novices and Experts

Novices

- Don't know what's important
- Do not immediately see where they are going
- Start from the beginning
- Use trial and error
- Do not effectively monitor progress
- Do not accurately judge their own level of learning/understanding

Experts

- Focus on what's important
- Know where they are going – see patterns
- Start from the end
- Use heuristics and patterns
- Very effectively monitor progress
- Very effectively judge their learning/level of understanding

Studying Versus Learning

Studying

- Short Term
- Focused on WHAT
- Memorization
- BORING
- Fleeting
- Repetitious

Learning

- Long Term
- Focused of HOW, WHY
- Practice
- Challenging
- Enduring
- Varied

STUDY LESS AND PRACTICE MORE

Studying

- “Studying is what you do the night before the test to make an A. It is like renting the information from the text and falling behind on the payments. Right after the test, the information is repossessed!”
 - Pamela Ball LSU

The Night Before the Test

- I went OVER what we learned in class
 - HINT - Learning takes practice. In class you have access to the expert thinking of your prof. To learn you MUST practice on your own

DO ALL THE HOMEWORK

Really DO the homework – on your own without Google or the solution manual.

Look at the solution only AFTER you have worked the problem. If your answer is not the same make sure you understand where you went wrong

How Do I Know I Learned It?

- A good measure of learning in teaching
 - Can you explain it to your friend, your mom, your cat
 - To teach something, you have to think of what questions learners might ask
 - You need to consider how to organize the information to make it understandable

Form a STUDY GROUP and teach your friends

Building Expertise _ Learning Cycle

- Preview (10-15 minutes) Look through the material on tap for the upcoming class
- Attend Class
- Review (15-30 minutes within 24 hours of class) Note gaps, jot down questions
- Intense Study Sessions
- Assess



PREVIEW:

Before class, skim the chapter, note headings and boldface words, review summaries and chapter objectives, and note questions you would like answered in class.

ATTEND:

GO TO CLASS! Ask questions and take meaningful notes.

REVIEW:

Within 24 hours, review notes, fill in gaps, and develop any questions that need answering.

STUDY:

Repetition is the key. Ask questions such as 'why', 'how', and 'what if'.

- **Intense Study Sessions:** 3-5 short study sessions per day
- **Weekend Review :** Read notes and material from the week to make connections

ASSESS:

Periodically perform reality checks

- Am I using study methods that are effective?
- Do I understand the material enough to teach it to others?

Intense Study Sessions

Set a Goal	1-2 min	Decide what you want to accomplish in your study session
Study with Focus	30-50 min	Interact with material - organize, concept map, summarize, process, re-read, fill-in notes, reflect, etc.
Reward Yourself	10-15 min	Take a break - walk around, get a snack, relax
Review	5 min	Go over, summarize, and wrap-up what you just studied

How NOT to Fall Asleep With Your Text – Active Reading



- Preview what you are going to read
 - Builds a framework on which to build in the details
- Jot down a few questions you have about the material
- After reading paraphrase the material – explain it to yourself
 - Make notes in your text
- OH Did she say I NEED a Textbook
 - YES – Recall that novices do not always know what to pay attention to. They will miss things in class. The details you need are likely in the text

Learning Cycle

- Attend Class
 - Learning science is a mentorship (back to the time of Socrates)
 - Class is where you get to see how an expert thinks
 - Take notes BY HAND – when we write we process for meaning
- Use Homework to assess your learning
 - Most students do homework by following example problems – this will NOT tell you whether or not YOU know how to work the problem
 - Use HW as an opportunity to quiz yourself – check ONLY the final solution if it is incorrect compare your APPROACH to the one used in examples.

Each One Teach One

- Explain it to a friend, your mom, the cat, an empty couch
- Form a study group
- Stump the Chump
 - Use HW to create Mock exams
 - Mock test and quizzes help you learn how to access what you learned



The road to success

- You will not quit
 - On yourself
 - On each other
 - On me
- You will not take the easy way out
- You will not walk out on a challenge
- You will not fall behind
- You will seek help immediately (from your peers, the hotspot, the tutoring center)