Chemistry / STEM Applications: Memory & Learning

Dr. Rusay / Chem 108

http://chemconnections.org/general/chem108/learning.html

Chemistry & other STEM disciplines (Science, Technology, Engineering, Mathematics) deal with a vast amount of interrelated information and many abstract concepts. This large, diverse assortment requires us to recall and use information to construct mental images of a world that often cannot be seen directly, but which can be inferred from observations and measurable data. Molecules and atoms are too small to be "seen" in a direct simple way and with a clarity that we normally have in seeing our surroundings and each other. But, technological tools allow us to develop mental images of many phenomena by inference. This general method is commonly used to understand our environment, not just on a micro- scale that includes viruses, bacteria, proteins, enzymes, and much, much more, but on very large macro scales: planets, stars, solar systems, and galaxies.

The observable information, data and their mathematical treatment tend to be "hard" (i.e. relatively absolute and concrete: e.g physical properties and chemical reactions that follow well defined rules and formulas.....but not necessarily "hard" as in difficult). This "hard" information is used to develop and communicate "soft" or logical, most often easy to understand, atomic and molecular concepts, ideas and models that represent these abstractions as simply and reasonably as possible. The intellectual challenge is to be able to effectively deal with the very different "hard" and "soft" aspects. What works best for me may not work best for you, since our perceptions are usually different and we very likely rely more or less heavily on a variety of different approaches.

There are many possible ways to remember facts and to apply them, which can be more or less effective. Educational testing and experimentation have produced an idea of the various styles of learning that people employ. I understand the relative importance of my learning styles and concentrate on the principal ones that work best for me. In this first exercise, you will learn something about your learning styles, and hopefully what might work best for you.

Will you readily remember the information that you just read and be able to use it? Some of you will and some will not. Ask yourself, how else you could have gotten this information without reading the words? Would an alternative have been better? What is the best way for you to optimize mental recall and the application of information? One thing that is certain, since there is such an overwhelming amount of new information to deal with in our lives in general, forced memorization is not efficient and in many cases not effective, except perhaps for those very few of us with "photographic" memories. What are your alternatives?

Instructions:

1) Complete the survey & tabulate the results.
2) Relate the results to your study habits.
3) Go to: http://chemconnections.org/general/chem108/learning.html#assignment

Complete the on-line assignment form at the end of the survey and submit. Once correctly submitted and received, you will be credited with a perfect quiz score for this first class assignment. Dr. R. will e-mail an acknowledgment to the e-mail address that you provide in your on-line submission after the assignment deadline passes. It is an all or nothing assignment. If a complete form is not received by the deadline on the course calendar page, you will receive a zero for the assignment, which will put your class success at risk from the course outset since e-mail and the Internet will be the primary avenues of communication in Chem 108, and timeliness is most highly valued. NOTE: In your submission, be sure to provide a **correct e-mail address** that is for your OWN personal account; one that Dr R. can absolutely rely on to contact you. Otherwise you may not receive important course information.

	Often	Sometimes	Seldom
1. Can remember more about a subject through listening to a lecture to obtain information and getting explanations.	____	____	____
2. Prefer information to be written on the chalkboard, with the use of visual aids and assigned reading from the text.	____	____	____
3. It helps to write things down or to take notes for review.	____	____	____
4. Prefer to use models, actual practice and some activities in class and lab.	____	____	____
5. Require explanations of diagrams, graphs, or visual directions.	____	____	____
6. Enjoy working with my hands or creating things.	____	____	____
7. Enjoy developing and using graphs or charts.	____	____	____
8. Can tell if sounds match when presented with pairs of sounds.	____	____	____
9. Remember best by writing things down several times.	____	____	____
10. Can understand and follow directions on maps.	____	____	____
11. Do better at academic subjects by listening to lectures and tapes.	____	____	____
12. Play with coins, keys or objects in pockets.	____	____	____
13. Learn to spell better by repeating words out loud rather than by writing the words on paper.	____	____	____
14. Can better understand a news article by reading about it in the paper than by listening to the radio.	____	____	____
15. Chew gum, smoke, or snack during studies.	____	____	____
16. Feel the best way to remember is to picture it in your head.	____	____	____
17. Learn spelling by "finger spelling" words.	____	____	____
18. Would rather listen to a good lecture or speech than read about the same material in a textbook.	____	____	____
19. Good at working and solving jigsaw puzzles and mazes.	____	____	____
20. Grip objects in hands during learning and study periods.	____	____	____
21. Prefer listening to the news on the radio rather than reading about it in the newspaper.	____	____	____
22. Obtain information on an interesting subject by reading relevant materials.	____	____	____
23. Feel very comfortable touching others, hugging, handshaking, etc	____	____	____
24. Follow oral directions better than written ones.	____	____	____

Learning Style Scoring Grid

Ques. #	Visual Pts.	Ques. #	Auditory Pts.	Ques. #	Tactile Pts.
2	____	1	____	4	____
3	____	5	____	6	____
7	____	8	____	9	____
10	____	11	____	12	____
14	____	13	____	15	____
16	____	18	____	17	____
19	____	21	____	20	____
22	____	24	____	23	____

TOTALS:

Visual		Auditory		Tactile	

SCORING: Use the grid to value the answered questions. Place a point value (**OFTEN = 5 points**; **SOMETIMES = 3 points**; **SELDOM = 1 point**) next to the corresponding question number. Total the points in each column to obtain the preference scores under each heading.