

Study101: Surviving Chemistry

Chemistry is sometimes thought of as an "impossible" class meant only for students with a genius' IQ. To the contrary, anyone having the desire to learn, and the stamina to stay with it, can maintain at least an average grade in the course. The material in this survival guide is meant to improve the learning skills of any student and may prove to be essential for many students to have a successful experience in the course. When reading this material it should be noted that the most important variable in any student's learning is the attitude of the student him/herself. The student must realize that success is due to effective effort, that is, using effective strategies within an adequate time period.

Time Management

Quality learning requires a quality time commitment; success in most any college-prep course requires a realistic commitment of time. Do not expect to understand major concepts in this class with only a minimum of effort; you will probably have to devote an average of at least 45 minutes of "homework" time each day in order to do well.

- Avoid working an outside job of more than 10-15 hours per week. (Consider your schooling to be your full-time job and give IT your best effort. Remember, it's YOUR future that is at stake!
- Set up a weekly schedule showing all of your waking hours for each day (including Saturday and Sunday!) Fill in that schedule to show your classes, club activities, etc. Then, write in your study schedule for each of your classes. DO include some time for relaxation and exercise, but make those times reasonable. Plan your time realistically; don't set up a schedule you have no intention to stick to.
- Recognize your most productive hours of the day for studying. If you are a morning person, for example, you might consider a schedule which will allow you to get to sleep relatively early each night so that you can awaken early and do some studying in the morning before going to school. Above all, avoid trying to study when you are dead tired; such effort is almost totally unproductive.
- Once you've set up your schedule, stick to it! You should stay focused and avoid temptations such as TV, going out on the town, etc. One exception leads to another and soon you'll find yourself far behind in your studies.
- Use broken-up periods of time profitably. For example, your friend who is to give you a ride home needs to stay after school to make up a test. While waiting, take out your notebook and review the day's class notes.

Note-taking

Note-taking is an absolutely essential feature of effective learning and it should be employed not only when one is listening to a lecture in the classroom, but also when studying an assignment.

Class Notes

- As expected, one should take notes on what a teacher writes on the board or overhead. However, don't just blindly copy down that information; THINK about what the notes are about and if they don't make sense you should immediately raise your hand and ask for a clarification. Students are expected to be interactive learners, even when the teacher is "just giving notes". If the teacher is going too fast, don't be afraid to ask him/her to please slow down.
- Be sure to also jot down notes from what the teacher says as well as what is written down on the board or overhead.
- Important!! Once you have written your notes in class, don't forget about them until days later when it's time for a quiz or test. Make it the first item of each day's homework routine to review those notes, organize them, and write down supplementary questions based on them. (See "Homework")

Book Notes

The main character in Louis L'Amour's book *The Walking Drum* makes the statement "Reading without thinking is as nothing. For a book is more important for what it makes you think, than for what it says." A person MUST keep their mind active while reading and the best way to do this is to write summary notes and questions while reading. These notes can be accessories to your class notes, and any questions can be brought to the next day's class and answered as part of that day's discussion.

Homework

An average student in a chemistry class can expect to spend about 45 minutes per day on homework. Coming to class prepared for each day's activities is important, and to miss a day's assignment not only causes one's work to pile up, but it also makes it more difficult to understand the next day's discussion or lab.

- Select a place to study that is quiet where you won't be disturbed. Turn off the TV, and the stereo should either be set up for relaxing music or also turned off.
- Look through the previous two or three day's questions (make yourself answer them!) to make sure you have not forgotten key concepts learned earlier.
- Read through that day's class notes, organize them as necessary, and then write supplementary questions regarding the material. (See Figure 1 immediately following this section.)
- When beginning study of a new concept, read through the objectives for that topic and note and write out the meanings of key vocabulary terms. Scan the material for key terms in boldface, section headings, and charts and graphs. Then, carefully study the assignment, jotting down book-notes as you do. (DON'T recopy the text - just jot down essential ideas in an organized manner.)
- Answer the questions found at the end of each reading section in your textbook to test your understanding of the material you've just read.

Test Preparation

The best preparation for a test or a quiz is to study as has been described above. Cramming may work in the short term, but it will NOT carry you through to the end of the course. Students who complain that they studied for hours for a test have not just reviewed the material; they've had to RELEARN it. This is a consequence of not looking over the material routinely on a daily basis. Studies in learning behavior tend to indicate that once something is "learned", most of it (>90%!) will be forgotten in 24-48 hours unless it is reviewed. Other suggestions:

- Get a good night's rest the night before a test or a quiz. Staying up late to study is a poor alternative to coming into a test with a fresh mind.
- Look over your objective sheet to be certain that you've accounted for all of the objectives you're to be tested over. Can you state all necessary definitions, laws, etc. from memory? Prove it to yourself by actually writing out such information.
- Rework; don't just read through, problems selected at random from your worksheets/quizzes.
- Answer selected questions from the end of the chapter(s) the test/quiz will cover as additional practice before the test.

General Study Suggestions

Study skills are easy to think of but very difficult to master. We all have some study skills, we know that we need to read and reread, that we need to review homework assignments and notes, etc. But there are always more weapons to add to our arsenal to help us be better students. Think about some of these.

- Study difficult or boring subjects first. If your Chemistry problems put you to sleep (shame on you) get to them first while you are still fresh. Most people tend to do what we like first, yet the courses we find the most difficult require the most creative energy.
- Have short study tasks ready to do during these times. Carry 3X5 note cards with equations, formulas, or definitions and pull them out anywhere. Review, review, review – if you're sick of looking at it; you're almost there.
- Use your time-tracker. Keep track of all of your assignments, projects, exams, etc. by due date. If you don't know when the exam is, how can you study for it? It's also a good idea to keep track of items returned to you and your grade on it. If there is any discrepancy in your posted grade and your notation in your organizer than you have a better case for getting your grade adjusted.
- Make a weekly to-do list of important tasks and assignments that you need to complete. Be sure to prioritize the list and do the most important or highest point items first.
- Use a regular study area. When you use the same place to study over and over your mind and body become trained. When you arrive at that particular place, it will automatically sense that it's time to study. You will focus your energies and concentration quickly. Just make sure your study area is not too comfortable.

- Pay attention to your attention. Breaks in concentration are often caused by internal interruptions. Your own thoughts can easily jump in and distract you. If you there is too much going on around you or if you are finding it hard to concentrate try a different study spot or study time.
- Reflect on your study time periodically. Are you being as efficient as you can be? Notice how you might be unintentionally wasting time and make note of it. We operate by habit and tend to waste time in the same way over and over again. When you notice little things that you do that waste time and you make a note of them, you might notice them quicker the next time and can “nip it in the bud”.

Active Learning

A key to successful learning is taking an active part in your learning. Studying doesn't happen the night before the test. Studying truly begins in the classroom when you are taking notes. You need to take an active part in your learning.

- Before you come into the classroom you need to develop a mindset geared toward listening. It takes a conscious effort on your part to learn, and it all starts with attitude. Before you walk into the door be determined to learn to your full potential for this 90 minute period of time.
- Test yourself over the previous lecture the night before the next Chemistry block day. Review your notes, and look over your homework to see what questions you might have for the next day.
- During class listen for the structure and information in the lecture. Lectures are often organized around a theme or an outline. Label important points and organizational clues in the notes to help you recognize them when you're reviewing for the exams.
- Resist distractions, emotional reactions, or boredom. There are always distractions going on a classroom. It is your responsibility to not allow these everyday distractions keep you from your purpose, learning.
- Pay attention to the lecturer for verbal or postural clues to the most important pieces of the lecture. The lecturer might pause and re-stress a concept, which might be a good time to make a quick note of it in your lesson.
- PLEASE ask questions if you don't understand what's presented. Your best weapon for understanding is to get clarification. If you don't ask I can't help you understand.
- Instead of closing your notebook early, and putting your things away. Listen carefully to any due dates and summaries given by the lecturer. Sometimes the most important information is given just before the class is released.
- Edit your notes, labeling main points; add recall clues, and questions to be answered. Label pictures, graphs, charts, or models as to why they were discussed.

Listening Skills

You can think about 4 times faster than the lecturer can speak. This allows student's minds to wander and not remain focused on the presentation. Effective listening requires the expenditure of energy; to compensate for the rate of the lecture.

- Listening is a skill that must be practiced and developed. The responsibility for learning Chemistry is yours.
- Concentrate on what the speaker is saying. Determine why what the speaker is saying is important. If you don't have an immediate vivid reason for listening to a speaker, you are an unmotivated learner.
- Practice the habit of paying attention. It takes practice, try it out on your friends, your significant others, or your parents.
- Ask yourself: what questions does this lecture cover? What are possible exam questions that might be pulled from the lecture? What is the relationship between the lectures and the labs and activities done?
- Not everything is equally important in lecture. Hold yourself accountable for being selective and differentiating between levels of importance.

Discussion Questions:

These questions should be answered and the answers emailed to me for credit. My email address is jason.swango.@fayette.kyschools.us

1. What are three of your usual study habits?
2. What are two tips from this report that you might plan to incorporate into your study habits?
3. Give me your strategy for becoming an Active Learner.
4. Give me your strategy for becoming a better listener.