

Biology and Chemistry Study Tips

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Biology Study Tips:

- Look at the big picture and generalities before trying to nail down specifics. For example, make sure you understand how signal cascades work (i.e. ligand binds, (maybe dimerization occurs), receptor changes conformation, conformation change leads to signal propagation in the cell, and the desired effect occurs) before attempting to understand individual signal cascades.
- Use the pictures and graphs in the book. Make sure you actually understand the picture instead of saying, "Sweet, a picture, that's less than I have to read." Great, but the picture or figure should make sense as well, and it can help you further your understanding (especially if you're a visual learner).
- Organize the material. This is especially handy in General Biology Lab. Remember that insane Protocista lab? That was intense right? Well, after you make that outline at the end of the chapter (the last question of that lab) it's so much easier to see how that information is arranged. That's not specific to that lab either because there is a clear way to outline each of the chapters; you just have to figure it out. Sometimes the labs seem to just be throwing information at you, but it's important to understand how that information is organized. For example, knowing that Echinodermata is a phylum that branches off into various classes and organisms that include starfish (i.e. starfish is not synonymous with Echinodermata).
- Look at individual steps, and then look at those in a system. It's much easier to learn biological processes if you take them step by step and then put the steps together to form that system. For example, understanding that DNA helicase "unzips" DNA and DNA ligase joins newly replicated fragments makes placing them together in the larger system of DNA replication much easier.
- Similarly, understand isolated systems then fit them into organisms as a whole. As you know, there are many biological processes going on in multicellular organisms, and even individual cells. It is easier to understand how the processes work together (sometimes via what's called "cross-talk" or "divergence" in cell signaling) to make the cell work the way it does. For example, it's easier to study the Calvin Cycle by itself and then moving to understand how it interacts with the light reactions in photosynthesis instead of jumping straight into everything.
- Come up with easy names for things with difficult names. Sometimes biology books will bombard you with things like glycosylphosphatidylinositol-linked proteins or phospholipase-C. Sounds super complicated, right? Well if you refer to it like most biologists, GPI-linked (glycosylphosphatidylinositol-linked) or PLC (phospholipase-C), then it makes it a little less intimidating. That allows you to focus more on what these terms actually mean or these proteins actually do instead of how to pronounce them.

Chemistry Study Tips:

- MasteringChemistry and practice problems from the book are your best friends. Even if you've already done the homework, do it again...and again...and again. Also, MasteringChemistry has a great study section, and it is helpful to go through the hints on problems you've already completed to see the process of solving the problem.
- Start problems by visualizing the system. If you can visualize how atoms would look in your head or draw them out (not a detailed visualization or drawing, but just a Lewis dot structure), that is a huge help in understanding why they act the way they do.
- Always write down the information that is given to you in problems. It makes the process of working out problems a lot quicker if you have easy access to what you already know, so whenever there is important information in a problem, write it down. As you read through word problems, you might be given molecular mass, the number of moles, the value of a constant, etc. It will work in your favor to write those down (in the format of molecular mass = given value) so you don't have to scour the problem every time you need to use that value.