

Lab Safety

Unless your teacher really doesn't like you, he or she probably doesn't want to see you injured in a lab experiment. The following tutorial is meant to give you a brief overview of lab safety, as well as some basic safety rules you should probably pay attention to.

Why worry about lab safety?

In chemistry classes, as in real-world chemistry labs, there are lots of chemicals and pieces of equipment that can badly injure you under the right conditions. This is, needless to say, something that we want to avoid.

Another thing that's conspiring to kill you is your own lack of knowledge around the lab. While anybody who has worked around chemicals for any length of time knows how they act and how to behave around them, you have no such knowledge to assist you. As a result, you might blow yourself up doing something that seems perfectly reasonable. This is why it's so important to pay attention to lab rules.

The most basic rules of the lab

Though you probably have a huge list of rules that you've been told to follow, they're nothing more than a way to remind you about some broader guidelines for being safe in the lab. Those guidelines are as follows:

Rule 1: Know what you're doing before you do it. If you're not sure what the lab entails or what you'll need, don't do anything until you figure it out.

Rule 2: Don't do dumb stuff. Wrestling with your friend, eating the chemicals, and setting your pencil on fire are all dumb, so don't do them.

Rule 3: Wear goggles. Your eyes have no natural protection, so make sure you always have goggles to keep them safe.

Rule 4: Know how to use the safety equipment. And, just as importantly, know when it's appropriate to use it. A general rule of thumb is that if you're not sure whether you need to use some bit of equipment, you probably shouldn't.

Rule 5: Dress appropriately. Your clothes should be comfortable and they should cover any body part you want to protect from fire and/or chemicals. Also, ladies, please don't wear short skirts because it makes male teachers uncomfortable.

Rule 6: Wash your hands before you put them in your mouth. Your hands will pick up chemicals in the lab, so wash them before eating. (Note: Hand sanitizer doesn't remove chemicals – you actually need to use soap and water).

Rule 7: Be careful around fire. Anything that's been near a Bunsen Burner, oven, or hotplate should be assumed to be hot until it's been off the heat for ten minutes. Don't try to speed this time by putting hot glassware into water, because it will break and your teacher will kill you.

Rule 8: Use the right equipment for the job. Use graduated cylinders (not beakers) to find volume. Do experiments that generate smoke or gases in the fume hood. Use weighing paper or watch glasses to weigh things.

Rule 9: Put things away when you're done. If you've generated waste, put it into the appropriate waste container. If you've used glassware or other equipment, clean it and put it back where you found it. If you broke a beaker, put it in the "broken glassware" bucket.

Rule 10: Tell the teacher if something isn't right. If a piece of equipment appears broken or a chemical is contaminated, tell your teacher about it to ensure that it's fixed.

I know your teacher has given you a big bunch of other rules, but they're all pretty well covered here. Follow these rules, and follow the rules that your teacher have given you, and you'll be just fine.

Things you shouldn't worry about that much

It's funny how students sometimes find things that are relatively harmless to be the most disturbing. Let's look at some of the things that may terrify you more than is actually warranted.

- You're afraid of getting chemicals on you: In an introductory chemistry class, there is very little that you can get on your hands that will harm you in any way. Acids are nearly always dilute enough that they're not dangerous, and toxic chemicals usually aren't absorbed through the skin. While it's not a great idea to leave chemicals on your skin, it is, with rare exception, not a big deal if chemicals touch your hands.
- You're afraid of getting burned: Though rule 7 above tells you that you should be careful around fire, it's unlikely that you'll actually hurt yourself with fire. If somebody is being burned, we have built into us a natural tendency to get the heck away from the thing that's causing the burn. As a result, you won't permanently damage yourself using fire unless you are splattered with something that's burning or very hot.
- Breaking stuff: If you break things because you're screwing around (i.e. juggling beakers), you can assume that your teacher will not be pleased. However, if you're just doing regular chemistry, breaking things won't be that big a deal. After all, if you've never seen something before, it's not surprising that you'd have trouble working with it.

Some final words:

Lab safety is unbelievably important, but don't let a need for caution cripple you and keep you from working effectively in the lab.