



Dr/ Carol W. Greider

"Making a Difference Today for Young People Who Will Change Tomorrow"

We are dedicated to helping promising students maximize their potential by providing encouragement, guidance, mentoring, and support. It would be greatly appreciated if you would assist our mission by writing an open letter to our nation's youth. Your thoughts on how to make the most of life, especially the career component that represents such a large part of our lives, would be most helpful. This message will be distributed via our website and publications.

Dear Young People,

I believe three main attributes are essential to fostering creativity and rigor as a scientist: being truly curious, reading widely, and being self-critical. Biology is an empirical science that proceeds by trial and error (mostly error, I have found). To be able to get up every day and do experiments that will likely not work or give me an unhelpful result, I have to be working on something that I really care about. If one is really curious and wants to know the answer, the work that to many might seem a chore becomes a fun challenge. Then, when an experiment works, or when I have found out something new, the excitement is unbelievable.

In order to find out something new, I try to work on a problem that matters, and read widely. Reading high-quality papers in my field in not only gives me the background I need to know, but also reminds me how good experiments are done. Reading the literature critically and listening to scientific presentations provides often stimulates me to make new connections, both between unrelated fields and with my own thoughts and ideas. This synthetic creativity is deeply satisfying.

Finally, after coming up with a new idea to test, I always try to be my own harshest critic. Testing a new hypothesis is fun, but it is important to remember that testing a hypothesis means seeing if you can disprove it. Many scientists like their own ideas and design experiments to try to support their hypothesis. This is the quickest way to trouble, because we all have blind spots about the things we care the most about. I try to remember that most really great hypotheses turn out not to be correct. If I have an interesting idea that I have presented to the scientific community, I want the privilege to be the one to disprove it, rather than having someone else disprove my favorite hypothesis. I try to think if the most critical experiments that would disprove my hypothesis and do them first. Then, when I have disproved my own published work, I also had to report it in the literature. Of course, creativity and rigor are not sufficient for success in science—one also needs a certain amount of cleverness, good hands, perseverance, and luck. But one does not necessarily have all of them to make a good scientist. Curiosity, wide-reading, and self-criticism, on the other hand, I find are essential.

Sincerely,

Student Achievement & Advocacy Services is a 501 (c)(3) organization dedicated to helping students maximize their potential.

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