

LIFE Lessons: The Nature of Science

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Memorable K-12 Science Experience:

In junior high school, my lab partner and I accidentally set the lab table on fire because we didn't want to interrupt our ongoing experiment. We tried to refill our alcohol burner while it was still going. Lesson learned, safety is more important than data.



“Scientific discovery isn’t limited to PhD’s in high tech labs; all it takes is one question, five senses and two simple words.”

“What is it? It looks like a little corn cob. I think it’s a pine cone that a squirrel ate.” With those three sentences a sixth grade student captured what I consider the essence of science at the middle school level: the ability to make good observations and draw logical conclusions from them. The LIFE program strengthens students’ abilities in these two essential components of scientific inquiry. When used properly, observation and inference are at the heart of scientific methods and ultimately many scientific discoveries (both large and small). Most students enjoy making observations – especially about the environment -- and trying to draw conclusions from them. Many students who are not initially interested in science are surprised to discover they enjoy, or are good at, making observations and drawing inferences.

It’s hard to believe that one simple question, such as: What is it? or How does it work? can be the beginning of a scientific discovery. While curiosity may have killed the proverbial cat, in science it is essential and helps guide careful observation using all five of our senses. With these observations, we can begin to describe what “it” is. We can make qualitative observations such as the very descriptive analogy made by the student who said, “It looks like a little corn cob.” We can also quantify our observations by turning them into measurements. And finally, after making our observations, reflecting on what we already know (i.e. prior knowledge) and using simple logic, our young scientists can begin to explain the natural world with two simple words: *I think* . . . as in the case I mentioned above.

There may not be an earth shattering discovery every time we ask one question, use our five senses or begin a sentence with the two words: *I think*. And, even the best observation and inference skills won’t guarantee a discovery that protects our water supply, cures a disease or predicts a hurricane’s landfall. However, good observation and inference skills will go a long way toward producing a scientifically literate society. The same society that will need to recognize and make important decisions on the complex environmental issues we face today, such as global climate change and the loss of biodiversity.

How will we solve tomorrow’s complex issues? Every student can use science for discovery. *I think* our future depends on it!