

Secrets to Writing a Winning Science Fair Project Report

by Shawn Carlson, Ph.D. First you found a killer [science project idea](#), then you did a great [science project](#). Now, you've got to write it all up to compete in your science fair. Your written report is the single most important part of any [science fair project](#). A well-written report can make a pathetic project look pretty good, and a good project look exceptional. By the same token, a poorly written report is certain to sink even Nobel Prize-quality work. It's a simple equation. The winners know how to write up their science fair project reports in a way that shows off their know-how and impresses the judges. So when developing your report, here's a little friendly advice from a guy who once had over a million monthly readers in Scientific American magazine. Know this! Writing is all about communicating ideas clearly. Your goal should be for the information that you present to flow effortlessly from the page into the reader's mind without the reader's head ever snapping back. Your readers should absorb your prose effortlessly as fast as their brains can decipher the words. In fact, your readers should lose track of the fact that they are in fact reading. Their focus should be entirely on the information they are taking in, and not on the text itself. It takes a lot of practice to become a good writer, and you aren't going to master the art overnight. But here are a few tips for you to focus on that will help you find your voice and keep your audience. First, and I can't stress this enough, always always always write in clear declarative sentences. Take another look at the preceding paragraph. Can you see how short and clear the sentences are? The topic sentence isn't even a real sentence. It's a fragment, a two-word command. But it grabs your attention and pulls you in, just as any good topic sentence should. Each idea thereafter flows naturally into the next. This is how you should strive to write every paragraph of your science fair project report. Whatever you do, don't overwork your sentences! Each sentence should contain just one complete idea. Too many run-on sentences read like the writer let him/herself be swept away in their own stream of consciousness. Was the writer too lazy to think about what he or she was trying to say, or too ignorant to know how to communicate it clearly? Either way, run-on sentences will definitely impress the judges... in all the ways you don't want to. Next, and I know plenty of bad writers disagree with me, but for goodness sake, avoid passive voice like the plague it is! Yes, I know that virtually every science paper ever written is clogged thick with passive sentences, but that's not style. It's proof that most professional scientists couldn't find a good sentence with two hands and a flashlight. Sad to say, most scientists are absolutely terrible writers who, comparing their work only to other terrible writers, have convinced themselves that they are actually pretty good. They feel fully competent to ignore the advice of Pulitzer Prize winners who say the same thing that I am telling you now. Don't fall into that trap! Everyone who knows how to write hates passive voice, decries passive voice and struggles against passive voice at every opportunity. Why? Because passive voice is mind-numbingly boring! Readers of research papers must hack their way through these tangled morasses like intrepid explorers bulling their way through a nearly impenetrable jungle. Who wants to work that hard? Trust me. If you rely too much on passive voice, few science fair judges will have the stamina to find whatever gold you may have hidden deep inside your science fair project report. So, instead of "This project was undertaken to ..." consider "I undertook this project to..." Instead of "The data were taken..." try "I (or we) took the data..." on for size. Reducing passive voice in your science fair project report and writing in clear declarative sentences is a wonderful way to separate yourself from the herd. To stand above the crowd. To get noticed. A couple of ways to other impress the judges... Here's something you probably didn't know. The word "data" is plural! If you need the singular form then the word you are looking for is "datum". A datum is the product of a single measurement. Data is a collection of two or more datum. Data isn't an "it"; Data is a "they"; "The data shows" is incorrect. A datum shows (singular verb) something, but the data show (plural verb) it. The correct usage of data and datum is a huge pet peeve for some science fair judges. Getting this right consistently throughout your science fair project report will bring approving smiles to the faces of many judges, especially the curmudgeons. And believe me, a happy curmudgeon can be a good friend to have in a close competition! And please please please reserve jargon only for those instances when jargon is actually appropriate. I've read hundreds of science fair project reports (and at least as many professional research papers) in which the writers believed they could hide their ignorance or poor technique behind a smoke screen of obtuse language. Being difficult to understand doesn't make your writing sound deep any more than smoking makes you look like an adult. Believe me, science fair judges know all the tricks, and we can spot smoke signals miles away. Verbal puffery is a sure sign of a report that doesn't got da goods! So use only clean, clear and direct language. Finally, don't be cute! Science writing doesn't have much "personality" because scientists like it that way. Jokes and witticisms or clever word plays almost always make it harder to see the science in your paper. (The science fair student who explained that his experiment had proved a certain commonly held opinion to be "Taurus feces" didn't get high marks in my book, or anyone else's. He would have done much better if he had simply said that his results were consistent with the null hypothesis and therefore inconsistent with the commonly held opinion he was testing.) Oh, one more thing. Your science fair project report needs to have the following parts: * Title Page: Must include your science fair project's title, your name and contact information (address and school), your grade and the name of your science teacher. * Table of Contents: Include the page numbers for the beginning of each section. * Introduction: The Introduction includes your clearly formulated and testable hypothesis, as well as explanation of your idea, how you got it and why you think the work is interesting. (If don't think your experiment is interesting, give up now. You have no hope of doing a good project! So look around until you find something that interests you!) Also include what you hoped to achieve when you started the project. * Experiment: Describe in detail the method you used to collect your data and organize your observations. Your report should be detailed enough for anyone to be able to repeat your experiment by just reading the paper, so keep this fact in mind when you write it. It's always a good idea to include detailed photographs or clearly-labeled drawings of any device you made to carry out your research. * Discussion: This is where you explain the exact

process by which you reached your conclusions. This section should flow logically so that the reader can easily follow your train of thought. Compare your data with the null hypothesis (that is, what would you have expected if the observations you made were completely unrelated to the effect you were expecting), or to your predicted results. What you would do differently if you were to do this project again? * Conclusion: Summarize your results. Make sure not to introduce anything that wasn't already mentioned in the previous parts of your paper. * Acknowledgments: In this section you should give credit to everyone who assisted you. This may include individuals, businesses and educational or research institutions. Identify any financial support or material donations you may have received. * References: This list should include any documentation that is not your own, such as books or articles, that you used. For the accepted format, see the rules for your particular science fair competition. If the rules don't specify a preference, then find a research journal that publishes articles in the area of your experiment, and copy the format that it uses.

About the Author

Dr. Shawn (Shawn Carlson, Ph.D.) is a physicist and MacArthur Fellow who has devoted his life to helping ordinary people do extraordinary science. He is the Founder and Executive Director of the Society for Amateur Scientists, the world's largest support organization for citizen scientists. He is the creator of the Labrats science education program for children ages 11 - 18. He also runs Dr. Shawn's Super Science Fair Support Center at www.scifair.org.

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