

Why Do A Science Project?

Science Fair. Even the mere mention of the phrase is enough to cause dread in many, aggravation in some, and genuine excitement in others, both student and parent alike. With all of the stress and work involved in what can seem to be a pointless school activity, why would a student even consider taking on a science fair project? First of all, *every* student can get something out of a science fair project; this will be covered further in a moment. However, completing and presenting a high-quality science fair project is likely to be the *highest* paying job that a high school student can get. **A top project and paper can net a quarter of a million dollars just in winnings**, and that doesn't count what it can also do for a student's resume, college applications, education, and self-confidence! *Many* students can earn \$5000 or more on a less-than-top, but quality project. Some of these projects take as few as six weeks to complete, and some can be done in only a week if well designed and in the right field of study. That *definitely* pays more than a summer job!

When the teacher starts passing out the class syllabus in high schools around the nation, a common question asked by both students and parents is, **what is a science project?** Contrary to a common opinion, **a science project is *not* a report about an area of science.** A science project is *not* building a model that demonstrates something, unless it is demonstrating a new engineering design. By definition, a science project can be anything from the process of running a controlled experiment to proposing a new theory based on library or experimental research, or even developing a new concept, invention, program, or design. (For example, a model of a volcano, the solar system, or a human heart is not a science fair project. However, the use of a model to demonstrate a new theory or finding is both acceptable and encouraged.) At the school and regional levels of science fair competition, **the judges look for an awareness of the scientific process** and diligent project work, much more so than the specific findings of an individual's project. Excellent projects can be done with a concept that is not new to science if the student shows a good grasp of the scientific method, repeats the test many times, and demonstrates a good use of statistics, analytical thinking, and presentation skills in explaining the project. Diligence in reading and learning background information is also a key to having an award-winning science fair project.

Here is the question you have all been waiting for: **why do a science fair project?** The process of a science fair project, from the background research to putting the finishing touches on the display board or paper, teaches and cultivates cross disciplinary skills in a student. That is, **doing a science fair project is academic "cross training."** The educational purpose of doing a science fair project is that it is an assignment that utilizes the skills of reading, writing formal papers, art and graphic design, typesetting, proof reading, spelling, grammar, mathematics, statistics, computer science, critical thinking, logic, ethics, scientific methodology, background library research skills, the ability to teach oneself in a specialty field not taught in class, the power of self-discovery where the student learns something of his or her own research and ability, public speaking, the defense of one's own thoughts and conclusions in front of "the experts," and general project skills, such as researching alternatives, making a plan within the time and money budget, executing the plan, and evaluating the results. Each of these skills will be beneficial to an individual's future, no matter which field of study or career that he or she chooses to pursue. Moreover, these same project skills are also needed for daily living, from the

task of cleaning or redecorating a bedroom to the future goals of planning a family vacation, or adding a deck onto a house. The science fair project is a perfect opportunity for academic “cross training”.

Doing a science project each year through middle and high school results in students who are **competent, skilled, self-confident, and competitive young leaders** who have career goals and the preparation, discipline, and drive to attain them. Students who have been diligent in researching and writing their science fair papers and who compete with science project and research papers find themselves with a clear advantage when faced with research papers, final projects, lab reports, or term papers in college. The writing, planning, self-discipline, and presenting skill of these students is significantly above most of their peers in college classes. Parents, teachers, and mentors need to encourage their students and help make resources available, but the benefit to the student comes in the execution of the project on their own.

A science project, then, is an opportunity for the student to “cross train” academically: to develop critical thinking and presentation skills. When the student demonstrates the scientific method, uses repeated tests with a basic understanding of statistical analysis, is diligent in reading and learning background information, and can discuss the concepts of science suggested by the student’s experiments, the student is well on the way to having an award-winning science fair project. Even moderately successful high school projects may earn winnings more than the earnings of a full time summer job. Doing an annual science fair project does not have to be a massive drain on the time and resources of the student, parent, or teacher. Rather, the rewards are well worth the effort, as the student will gain the necessary preparation and academic skills for future education or work, regardless of vocation or college major. A project does not have to be the bane of a student’s existence, but can rather be an exciting chance for a student to make lifelong friendships and establish important networking connections early in life. Thus, the benefits of a science fair project clearly extend beyond the classroom and will continue with the student in his or her life outside of high school.

Please see the Twin Cities Regional Science Fair website at <http://www.tcrsf.org/> for more information on science fair projects.