



Scientist Mentor Idea #3

EXPERIENCING THE FUN OF SCIENCE FAIR

One of the easiest and most enjoyable ways to support your local K-12 science community efforts is to participate in a science fair. This tipsheet offers ideas for different levels of involvement. These tips are based on firsthand experiences of other SOT members who have discovered the enjoyment of contributing their toxicology expertise and other talents to annual local science fairs.

Step 1: Assess your level of interest and time that might be devoted to this.

Consider the following options:

- **Convince your SOT Regional Chapter to sponsor special awards for students presenting the best toxicology-related research.** You might be surprised by the number of projects entered in biology, chemistry, and other basic science categories that would easily fit into a toxicology category if such existed. Find out if your local science fair organizers formally recognize prizes awarded by professional organizations, and if they do, then how and when that judging occurs. If your chapter officers do not yet know how to become involved but are interested, and you have no experience with science fairs but want to initiate the process, start by making some inquiries at your local schools or the school district office. A few telephone calls or e-mails should put you in contact with organizers who are usually eager to hear from others who want to participate. Organizing a handful of chapter members to spend a couple of enjoyable hours evaluating projects and interacting with students is not usually very difficult. Special acknowledgements for students can range from certificates to engraved plaques to cash awards, depending on your chapter's interest and resources.
- **Offer to be a judge.** This usually involves a half-day or day commitment, depending on the number of student entries. The tips offered above for contacting organizers and volunteering to judge also apply here. Good judges are sometimes difficult to find, so expect to be contacted again in future years if you add yourself to the judge's list.
- **Offer to be a science fair advisor to a school and help students design their projects.** This need not necessarily involve sustained effort or having a student work in your laboratory. Some classrooms might benefit from a one-time brainstorming session with a teacher, with or without students present. An obvious prerequisite for being effective at this is that you clearly understand the scope of projects that are encouraged and are feasible for a given age group. Ask to see any written guidelines that exist to help teachers, students, and parents. There are also many websites that describe typical science fair experiments and provide ideas that could be expanded or altered to become suitable toxicology-related projects.
- **Mentor a student through the entire process of developing, executing,**

interpreting and presenting their experiments. This is obviously a serious commitment of time and must be done well to ensure that the student has a good experience, whether or not the experiments "work" or the student fails to win a prize for the effort. If you are in a position to offer to work closely with the student in your lab during this time, expect that school, homework, sports, music lessons, family obligations, and many other extracurricular activities expected of today's overachieving youth will compete for your student's time to spend on this. If you both succeed, then this can be the most valuable and rewarding contribution anyone will make to your student's future understanding and appreciation of research and science in general!

- **Help your local school or school district organize their science fair.** Many science fair organizers are among the most dedicated individuals on the planet and could probably use your help. Depending on the size of the fair, expect a significant time commitment but great rewards!

Step 2: For those interested in helping students learn the fundamental principles of research, and guiding students through toxicology-related projects that build upon subjects they are already studying.

This is a laudable goal! Here we offer two suggestions for getting started if you are really committed to making a significant difference in some students' lives by working with them closely on science fair projects:

- **Obtain and peruse a copy of the National Science Education Standards (National Academy Press, Washington, DC), <http://www.nas.edu>.** The "science as inquiry" standards explain how students in all K-12 grade levels should be learning abilities necessary to do and understand scientific inquiry. You can help them learn skills expected, such as observation, inference and experimentation—an appreciation of "how we know" what we know in science. A little time spent with this important document will be very informative, and will reassure you that any extra effort directed toward helping students through a science fair investigation can greatly accelerate this learning process for those fortunate enough to benefit from your experience as an investigator.

- **Consult other Scientist Mentor Idea sheets in this series for other specific information on what to expect of today's students with respect to prior experience with science.** #1 "Contributing Your Toxicology Expertise to K-12 Student Classes: Identifying Common Ground", in particular, was designed to help toxicologists appreciate what topics are commonly introduced in science classes of different ages so that they can better relate their toxicology expertise to these subjects. Of course, K-12 teachers are still the best source of this information. They can also help identify skill levels and reasonable expectations for individual students with whom you might work to make the experience a satisfying and memorable one for all!

Credits: Scientist Mentor Ideas are a creation of the K-12 Education Subcommittee of the Society of Toxicology's Education Committee. Many of these ideas came from teachers and toxicologists who participated in annual "Paracelsus Goes to School" K-12 teacher workshops sponsored by the SOT with support from the National Institute of Environmental Health Sciences.