Information for Participants and Mentors

Who Can Help You Do Your Project?

Mentors are your best friend when it comes to successful projects. They not only give you additional resources, they give you another perspective of your project allowing you to get extra knowledge you wouldn't otherwise have.

- Where to start?
- Do you necessarily need a mentor?
- Who is a mentor?
- What can you expect from them?

Acknowledgments

Mentors and all other major sources of assistance should be acknowledged with due credit. This is a matter of academic and professional integrity. Science fair participants must give appropriate credit to significant sources of external assistance in their project report. It is possible that the level of outside assistance will be brought into question. Science fair participants may sometimes be faced with a situation where they have to prove the credibility and integrity of their work.

Mentor Contacts

The process of finding a mentor works in two stages: preparation and contact. Preparation is the key to success. You can prepare by making an inventory of your research needs and a list of potential mentors. You then contact those potential mentors and try to establish a partnership. You have to understand that those potential mentors can be quite busy, and that they will probably work with you on a voluntary basis. You have to convince them that it will be a worthwhile investment. Every time that you contact a mentor, you have to convey some main points:

- That you are credible and dedicated to your project,
- That THEY are the adequate person to mentor you,
- That your project is possibly feasible.

Who Am I Looking For?

The interaction between a mentor and a student can be quite diverse. It may consist of someone 250 miles away with whom you can exchange ideas electronically. It might be someone who reads your manuscripts and makes commentary. It could be a school teacher that you meet with to discuss your project after every few weeks.

Who Is a Mentor?

A mentor is somebody that will provide guidance for your project. It can be a specialist with valuable knowledge or experience in a particular field. It can also be somebody that will give general supervision for the project. Nowadays, research projects tend to be quite interdisciplinary. In that case, you can have more than one person helping you on different aspects.
Mentors can include:

- Professionals
- Academics
- Researchers
- Teachers
- Parents
- Former-Science Fair participants
- Older students (high school or university students)
- Any other experts.

What Can a Mentor Do?

The role of mentor is to advise and accompany the student during the many steps of the project.

- Mentors can point to valuable resources to plan the experimental design,
- They can offer tips on refining details of the methodology,
- They can help you troubleshooting difficult experiments,
- They can show you different methods of data collections and analysis,
- They can discuss the interpretation of results,
- Mentors are great for getting input on your research,

- You can even chat on how your backboard looks!

A mentor will augment the overall quality of a student's work by fine tuning the finer details.

What Can't a Mentor Do?!

Their responsibilities

You might wonder what kind of conditions are appropriate to work with a mentor? What can be expected from a mentor?

- Mentors should not take over your project, or give advices without explanations;
- They should not manipulate you to do their own work, at the expense of your project;
- They should recognize that you are a science fair participant, and not a grad student; that you are only starting to learn and might not know even some basic things, and that you can only do so much.
- They should ensure that you work in a safe environment and that you are supervised at all times in a laboratory.

Your responsibilities

It is a great privilege when somebody open the doors for you and take the time to help you. You should have at least a basic level of professionalism and respect!

- YOU are responsible for the design and carrying of experiments, as well as for the analysis and interpretation of results, NOT your supervisor.
- When the mentor is in charge, for instance in the laboratory, you should abide by their decisions, discuss any initiatives beforehand and inform them of any unanticipated situations.
- Punctuality is the politeness of princes! Let your mentor know if you cannot make it for an appointment, and take good notes so they don't have to repeat themselves endlessly.

Handling conflicts

How does one tell the difference between good and bad mentor?

- There are not necessarily good and bad mentors, but they sometimes act in the wrong way for some reason. It might be the first time they work with a Science Fair participant, hence they have to adapt.

You need to know when to talk to mentor about the process. Be direct but tactful. A good approach is to focus on a single issue at a time and to discuss in an open and constructive manner.

In some situations, it is best advised to let go of your mentor if things aren’t working out. A final note: remember that, in science as in other things, Fun is Mandatory!

Why do you need a Mentor?

It is perfectly possible and acceptable to do very well without a mentor. Award-winning projects have been prepared by participants who had little to no external help and guidance. Some projects were designed completely independently, thus showing no apparent need for formal mentors. It is notable that the vast majority of winners at top fairs have a mentor/advisor. That can be explained by a couple of factors:

- Mentors can provide you with the best resources;
- You can benefit from their broad experience;
- You can discuss your project and get connected.

Selecting a mentor may prove to be a difficult task. Many projects are simply too specialized or focus on an obscure field where there are few available mentors. You have to see if the advantages outweighs the trouble of the matching process.

Good access to resources

Keep in mind that not having access to professional lab facilities does not ruin your chance of winning in the slightest. Some truly amazing projects have been conducted in the kitchen or garage, or in the school lab. However, having access to expensive (and super cool) equipment, sophisticated technologies, ... is going to let your take your project to a higher level! If a piece of equipment has been designed to carry a dedicated experiment, it might make it easier to control variables than on a home-made set-up. Empirical sciences require bullet-proof methodologies and solid data to be able to support a new theory. Using high-tech equipment might look like a less involved solution than using modest or custom-built equipment; on the contrary, precise and accurate data results are quite more compelling (provided that they are presented at their best). Since you don't have to reinvent the wheel, you can focus on what matters most: your research approach!

A mentor can give you easy access to other useful resources (that you don't think of at first): specialized literature, controlled or hazardous chemicals, experimental organisms, etc.

Learning from past experience

An effective mentor is the bridge to past scientific life that will help make your project more feasible. Mentors will know the difficulties of your project; they might even have tried something similar before! They are aware of current trends in your research field and will tell what is hot from what is not. They can show you different methods of data collections, analysis and interpretation process in your research project.

Mentors can help young scientists steer their project and their work in the right direction. It takes some humility to share the driving wheel between multiple persons. However, scientists greatly benefits from the passing of knowledge from one to another.

Developing a discussion

Most importantly, a mentor is someone who you can connect with. They can provide comments, criticism, advice and guidance to your proposed experimental idea. On the other hand, you provide an interest for a scientific question, dedication to your project and an unadulterated way of looking at things; in essence, you come like a breathe of fresh air! Developing a good discussion with a mentor is essential to learn the competences of scientists: project management, specialized vocabulary, logical reasoning, and critical thinking. The discussion process will help to improve your proposed project and find solutions when you are stuck. Finally, a mentor can be a valuable connection and a first step into the scientific community.

**This article has been adapted from the youthscience.ca