



The SMARTS Guide to Mentorship

An Introduction to Mentorship Mechanics

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What is a mentor, and why might I need one for my project?

A mentor is someone more experienced – it could be a scientist, a teacher, a parent or even another student – who helps you understand background information, teaches you the proper technique for conducting experiments and makes sure that your project is done safely. As your projects become more sophisticated, the mentor may also provide equipment, supplies, support and experience.

How should mentorship work?

First, you choose the topic for your project. Then the mentor may step in to provide background information. During an experiment, you will normally be the one to collect the data, without assistance. If that isn't possible, the mentor (or whoever is actually conducting the experiment) must be properly credited. Either way, any analysis of the data must be done by you alone. A mentor should only assist when you require help in deciding how the analysis should be conducted.

When mentors assist in a project more than they should, students are deprived of valuable learning experiences, and core science fair values may be violated. Mentors should only seek to set a good example for their students, scientifically and ethically. Some people feel that mentorship confers an unfair advantage on science fair projects. Science fairs are sensitive to these concerns and ensure that judging focuses on each student's scientific thought, understanding and creativity.

That's why, at a science fair, you are required to describe the specific role of your mentor on registration forms and to credit him or her appropriately on your projects.

The 6 Rules of Mentorship

1. The science fair project must be your own work. The mentor's role is to provide advice and guidance, and not to take charge of the project.
2. A mentor's time is valuable. You should be punctual and prepared to make good use of your time with the mentor.
3. If you are working in your mentor's lab, then you must learn the safety rules and undertake necessary safety training.
4. For the mentor's protection and yours, all mentorship meetings should be held during business hours in the presence of others. At school, a teacher or staff member should be present; at other locations, a parent or guardian.

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5. It's up to you to contact the mentor and make all arrangements, such as transportation, meeting times, supplies, etc.
6. You are responsible for doing all of your own work except where prohibited by safety concerns or regulations.

How do I connect with a mentor?

Before contacting a scientist or other potential mentor, have a relatively focused idea of your research area or question. A clearly outlined plan in writing is even better. You can identify potential mentors in your local area by using the Internet, searching a directory, making phone calls, etc. Normally, the websites for specific institutions (such as universities) post profiles of their researchers that may help you determine whether their interests are applicable.

The next step is sending a polite, enthusiastic message, by email if possible, to each potential mentor. Your message should be clear and thorough. It should project a more professional image than a phone call, displaying good grammar and precise vocabulary. Showing a keen interest in the potential mentor's specific field of science will help make a favourable impression. Thorough editing is recommended to ensure that you sound intelligent and confident.

Writing a personal message to each scientist will improve the odds of a positive reply. Mass emails are regarded by many people (and email filters) as spam and are likely to be ignored.

What is the format for writing the email?

1. Start each email by introducing yourself (name, grade, school, etc.). Include brief background information about previous experiences with science projects and fairs.
2. Next, indicate that you are planning on entering a particular science fair, biotechnology challenge, etc. and are hoping to develop a project pertaining to the potential mentor's field of expertise.
3. Describe your specific research interests and project plan in a paragraph, making it impressive by sounding confident, knowledgeable and mature. Demonstrate that you have given the topic some thought and have the potential to follow through with an advanced project.
4. Express some genuine interest in the researcher's work, after doing some background reading. This helps personalize your message.
5. In the next paragraph state your reasons for seeking mentorship, and what kinds of help you would hope to get from the mentor if he or she agrees.
6. Conclude with many thank-yous, along with a reply email address and phone number that the recipient can use to contact you. If applicable, include a note about an attached curriculum vitae document. (A curriculum vitae, or c.v. for short, is a résumé. However, in the scientific community, this is the proper terminology to be used.)
7. If you receive a positive response from the potential mentor, you can then arrange a meeting to discuss further details.

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How do I know if I really need a mentor?

Many top-level projects can be conducted successfully without a mentor. Often, the only projects that actually require a mentor are those involving measurements with specialized or sensitive (and often expensive) instruments, projects that use unusual or restricted materials or projects that require specific approval or supervision for reasons of safety or ethics.

For some projects, substitutes for restricted materials can be used, or a smaller-scale version of a device can be constructed that will produce the same successful result. If the project is straightforward, you can request access to the scientific facility or equipment without a mentorship commitment. An assistant to the researcher may be able and willing to supervise you for the period required to complete the work. In addition, you can ask a mentor for guidance in getting started but work on your own after gaining enough knowledge.

Mentorship for Canada-Wide Science Fair Finalists

Starting in 2007, Canada-Wide Science Fair Finalists have a built-in opportunity to take their projects to the next level. Youth Science Foundation Canada is developing a pilot Mentorship Program for CWSF Finalists that will connect them with a mentor (usually a university professor) who can help them develop their project work to its full potential.

A Final Note...

Always remember that the most important elements in a great project are a creative approach to an interesting question or problem, logical and sound scientific methodology and a clear presentation of the work. A simple project completed at home or school can be just as successful as a mentored project conducted in a lab.

Good luck, and have fun!

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ABOUT THE AUTHORS

This guide to mentorship was prepared by Eden Full, Natalie Raso and Joshua Liu.

Eden Full won a Silver Medal in Intermediate Earth & Environmental Sciences at the 2006 Canada-Wide Science Fair.

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Joshua Liu won a Bronze Medal in Senior Life Sciences at the 2005 Canada-Wide Science Fair.

ABOUT SMARTS

SMARTS (Student Mentorship Association Regarding Technology and Science) is YSF's for-youth, by-youth network that connects young Canadians with science – and one another.

For more information visit www.ysf-fsj.ca/smarts

ABOUT MOTOROLA'S RAISE YOUR VOICE PROGRAM

Motorola Canada's Raise Your Voice initiative is a national philanthropy program that urges youth to ask for help when they need it. Driven by a strong belief that no one should feel alone when facing problems, Raise Your Voice aims to empower young people to speak up when they are struggling and to create communities that support youth when they do request help. Raise Your Voice partners with organizations in Canada that understand the problems young people face, and provide resources and support to help them be heard.

For more information visit www.raiseyourvoice.ca

ABOUT YSF CANADA

Since 1962, Youth Science Foundation Canada has played a vital role in nurturing the scientific impulse of our youth – encouraging them to develop scientific and technological knowledge and skills. Every year, half a million young Canadians – as many as play hockey – participate in project based science. Fired by the energy of over 8,000 volunteers: educators, scientists and parents across a network of over 100 local organizations, YSF works to capture their imaginations and broaden their access to science. Our goal is to ensure all young Canadians have the chance to peer through the lens of a microscope and be mesmerized by what they see.

For more information visit www.ysf-fsj.ca

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