

Lighting the Imagination: Education Programs at the Canadian Light Source

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The future of science and of our synchrotron facilities lies in the quality of the people. Just as we develop new research techniques, we can do the same with teaching practises. The Canadian Light Source has developed an innovative approach to public and undergraduate education with a proven impact on the students and teachers involved. Since the programs began in 2006, more than 1100 high school students, 100 undergraduate students, and 370 teachers from across Canada have used beamlines at CLS through education programs. The key philosophy behind our unique series of programs is to provide opportunities for students (aged 14 – 25) to be immersed in as hands-on and authentic research experience as possible. These students experience a taste of reality in what scientific research is about including: the drive to produce novel information, communicate findings, collaborate with fellow students and experts, and drive their own research. Each team is supported by experts who mentor them through a research process – these are not demonstrations. The effects of participation are transformational for both students and teachers. Students gain not only in scientific knowledge but also in the skills that support mature development across disciplines such as communication skills, team work, leadership skills and above all, confidence. Teachers become well versed in innovative teaching techniques like inquiry and problem-based learning and come to understand the value of learning from mistakes rather than lowering grades. According to a public school teacher, “The program has a positive effect on the lives of students and teachers. This program is the most meaningful science outreach with which I have been involved.” A student offered this, “For me SotB was a life changing experience and I am happy to share that experience with you. SotB basically changed me into a whole different person based on a couple of key changes: my confidence, my attitude towards research, my leadership, and my thoughts on the importance of outreach.” There are four peer reviewed publications, two conference proceedings, a couple of invited talks and several presentations or seminars related to these programs. Teacher education communities, synchrotron facilities, and post-secondary education institutions are interested in what these innovative programs have to offer.



A young scientist investigates the monochromator prior to participating in their experiment on the IDEAS Beamline.