

**“Volunteer! It’s good for the soul.”**

*Dan Garsonnin, aviation enthusiast and ESDN volunteer*



**Program Coordinator**

P: (403) 328-3961

F: (403) 320-2365

E: [programs@satclethbridge.ca](mailto:programs@satclethbridge.ca)

**Regional Executive Director**

P/F: (403) 381-0748

E: [admin@satclethbridge.ca](mailto:admin@satclethbridge.ca)

**Mailing Address / Office Location:**

c/o Career Transitions

3305—18 Avenue North, Lethbridge, AB T1H 5S1



# Volunteer Manual 2011-2012

Connecting Scientific  
and Educational Communities

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## Volunteering at Community Events

*Adapted from: Science with Impact, 2006 Let's Talk Science Participant Workbook*

*Recognize that community events and group activities have a different atmosphere from a formal classroom setting. A primary value of these "out of school" venues is making science and engineering accessible—and fun!*

**Be prepared**—youth at community events can become very excited and loud. Plan your activities by taking excited youth into consideration. Community events require hands-on activities that are repeatable. Is there something that participants can take away? Can you control access to the equipment and materials to a small number of youth at a time? Test all the activities ahead of time and have at least one tried and tested activity that is a sure crowd pleaser.

**Be informed**—Ask your hosts about the objectives of the event or group activity. What do they hope will be achieved? Ask about their expectations for the youth's behavior and participation. Ask group leaders to participate and plan a role for them.

**Use a variety of age-specific activities**—Because community events often include youth from a wide range of ages, it can be a challenge to keep everyone engaged. Choosing a topic that allows you to design specific activities for different levels of engagement, knowledge and skills will ensure that your event is a positive experience for everyone.

**Go with the flow** and embrace whatever topics interest the youth. The activity you think will be a hit might be a flop, while some minor item may get everyone super excited.

**Anticipate questions**—Parents, the general public and sometimes the media are present at community events. You might consider preparing answers to simple questions about what you are doing and why.

**At the event**—To avoid unruly behavior and keep your activity on track set boundaries and notify participants of the rules ahead of time. Put the instructions on task cards or posters if you can. Involve others in preparatory tasks to keep everyone occupied if taking turns is necessary—plan these 'helper' tasks in advance. Do the activity in steps—first you do it, then invite youth to participate (as long as they are calm). Perhaps allow one participant to try first, before opening it up to others. Sometimes activities will fizzle and get unruly because participants get bored. Ending the activity at the right time leaves the participants feeling excited and interested and avoids the potential for them to become bored and lose interest.

## Judging Science Fairs/Science Olympics

*Adapted from: Science with Impact, 2006 Let's Talk Science Participant Workbook*

*If you are shy about volunteering with youth, science fair judging might be for you! It requires minimal time commitment, is planned in advance and you will be with fellow science and engineering volunteers.*

**Ensure that you are able to meet your commitment**—once judging is scheduled, it is extremely difficult to find replacements, especially on short notice.

**Be prepared**—Check to see if there is a set of marking criteria or pre-set questions for the judges to use. If not, you can find many examples of science fair rubrics online.

**Put the student at ease**—Being judged is a big deal. If time permits, introduce yourself and talk a little about your background. Use appropriate body language such as bending down to talk at eye level, and smiling. Remember to compliment the student on some aspect of their project that draws your attention. Before asking difficult questions, begin the conversation with simple questions that are easily answered—such as their age, their school/class, how they constructed their display or model and how much time it took.

**Be positive**—Participating in a science fair should be a positive experience for everyone, regardless of whether the student's project is a winning one or not. Show praise wherever possible, frame questions in an open, positive way (e.g. "What do you think would happen if you..." instead of "Why didn't you..."). Avoid using a skeptical tone of voice.

**Be a role model**—You are an authority figure for the youth presenting their projects and their perception of your attitude could have a profound impact on their confidence. Be careful to demonstrate through body language, tone and your words that you are listening attentively. Be careful to frame suggestions in a positive way and open and close with compliments to the student.

**Be fair**—If you are very knowledgeable about the subject of a student project, be careful not to expound too much. This might give the student an unfair advantage if your words were to be repeated by the student to the next judge. Spend about the same time with each student, and spend the time listening to the student's explanation rather than giving your own. Ask questions that are designed to probe what the student does know, rather than what they do not.

**Get it clear**—If you are not familiar with the project topic, or if you do not understand something a student is telling you, keep asking questions until it make sense. If you still cannot understand, make a note of the project and speak with the other judges.

## Welcome

Thank you for becoming a volunteer with the Southern Alberta Technology Council (SATC). Volunteers are our most valuable assets. It is a community of volunteer scientists, engineers, and technologists who share the science of their world with students and teachers that drives the work that we do. Our board and staff recognize the vital role that volunteers play in achieving our mission and we strive to offer volunteers meaningful, worthwhile experiences.

Science and technology play a critical role in our world. Interaction with credible and realistic scientific role models can have very positive effects on attitudes towards science as well as career decisions. The importance of engaging scientists and engineers in science outreach activities has been recognized by our volunteers as a meaningful way to share their passion for science and engineering with students, teachers, and the public.

### Definition of a Volunteer

A volunteer is a person who by choice and without financial compensation contributes time and service to assist in fulfilling the mission of an organization.

### Volunteer Philosophy

SATC supports and encourages the utilization of volunteers to fulfill its mission. SATC will accord volunteers the same respect and consideration as its employees in the areas of position requirements, interviews, orientation, training, placement, supervision, evaluation and recognition.

SATC's board has accepted the Canadian Code for Volunteer Involvement as developed by Volunteer Canada in 2001, the International Year of the Volunteer. In accordance with the Code, SATC is developing policies and standards for its volunteer programs. A copy of the Code can be found at [www.volunteer.ca/volunteer/pdf/CodeEng.pdf](http://www.volunteer.ca/volunteer/pdf/CodeEng.pdf).

## About Southern Alberta Technology Council

### Overview

SATC is a non-profit organization based in Lethbridge, Alberta, dedicated to promoting science literacy and educating students about future possibilities in science and engineering careers. Programs are designed to directly benefit children and youth through personal interaction with scientists and engineers who work in a diversity of fields.

SATC is part of a larger organization of volunteer scientists and engineers. The Alberta Science Literacy Association (ASLA) [www.asla.ca](http://www.asla.ca) is a registered charity that serves as the provincial support organization for six Science and Technology Networks in Alberta (Edmonton, Calgary, Red Deer, Medicine Hat, Grande Prairie, and Lethbridge). ASLA works closely with both the scientific and educational sectors in the communities served to provide programs of high scientific and educational merit. ASLA volunteers, active in all areas of science and technology, work to provide the knowledge, skills and expertise to answer questions, make classroom visits, provide hands-on science experience, judge science fairs, conduct field trips, aide in curriculum development and nurture budding young scientists and technologists.

SATC programs are funded by a grant from Advanced Education and Technology to ASLA. In addition, SATC has also benefitted from the generosity of community business and industry. Many donations - financial and in-kind support this program.

### Our Board of Directors

Chris Roedler, President	Barb Tate, Regional Executive Director
Mark Bellamy, Past President	Mandi Parker, Member at Large
Leah Roedler, Vice-President	Shoja Mazidi, Member at Large
Cal Koskowich, Treasurer	Cynthia Greenfield, Member at Large
Melissa Scullen, Secretary	Margaret Vennard, Program Coordinator

## Presentation Guide

*Adapted from: Science with Impact, 2006 Let's Talk Science Participant Workbook*

<b>Title</b>	Give your presentation a title.
<b>Target audience</b>	Indicate the age-group and level.
<b>Location</b>	Important information—school address, phone number, parking
<b>Teacher's name</b>	First and last names.
<b>Student names</b>	Strategies for learning names (ex: request name cards on desks)
<b>Safety</b>	List any safety considerations and your strategy (s) to address these considerations.
<b>Materials</b>	List everything. Be sure to photocopy the hands-on activity instructions or write the instructions on the board so that the participants can read the instructions themselves. Do not solely give oral instructions for an activity because most participants are not auditory learners.
<b>Equipment required</b>	Make sure your venues can supply or accommodate any special equipment that is needed (A/V equipment, chart stand, etc.)
<b>Key words /phrases</b>	Keep it simple—one or two key words and/or phrases.
<b>Agenda (Write on the board)</b>	<ol style="list-style-type: none"> <li>1. Put your name on the board so participants can confidently address you</li> <li>2. Give your presentation a title</li> <li>3. Put the "WHY" first! Indicate the applications or relevance of the lesson to participants after the introduction.</li> <li>4. Indicate the key idea or phrase</li> <li>5. Identify activities to be used</li> <li>6. Indicate clean-up time so students know that they are responsible</li> </ol>
<b>Learning Objectives</b>	<p>Answer these three questions:</p> <ol style="list-style-type: none"> <li>1. What do you want participants to learn? (refer to curriculum)</li> <li>2. What do you want participants to do?</li> <li>3. How will you know the participants were successful?</li> </ol>
<b>Activities to be used</b>	Detail the main activities you will use. Limit lecture time. Activities should change every 10-15 minutes unless you have a long and interesting lab.
<b>What can be cut?</b>	If you run out of time, what can you eliminate from your presentation?
<b>Possible extensions</b>	How can you extend the presentation if there is extra time?
<b>Reflections</b>	What went well/not well? What was the teacher's feedback? Did participants make any interesting comments? What would you do differently?

## Tips for Creating Effective Presentations

*Adapted from: Science with Impact, 2006 Let's Talk Science Participant Workbook*

**Be prepared**—Preparation is the number one tip for ensuring a smooth presentation.

**Be enthusiastic!** - Research into the characteristics of effective educators indicates that enthusiasm is extremely motivating.

**Make it hands-on**—Regardless of age, everyone learns best when they are engaged with the material by being able to touch and handle objects, as well as engaging in discussions.

**Share yourself** and allow the learners to share as well. Forming personal connections, albeit in a small way, positively affects motivation and learning. Addressing participants by name is one small gesture toward fostering a positive social environment; using anecdotes and personal notes in your presentation is another.

**Make it relevant**—We learn what is relevant to us. Find connections between the topic you are presenting and the participants' lives. Make that connection the basis of your presentation, if possible. Students will be interested in what you do and personal anecdotes that have a connection to things in their daily lives will be of most interest.

**Get questions beforehand**—If you ask the teacher to prepare a list of questions from the students before your visit, you will have a good idea about the kinds of things that are on their minds.

**Give each learner the opportunity to succeed**— Provide opportunities for everyone in the group to succeed—regardless of their own particular skill and knowledge level. If a student answers a question incorrectly, provide clues and hints to assist them in getting it right—by doing so you give them confidence that they can do it and show that you believe in them. Failure to achieve in science/math is a big contributor to the development of negative attitudes.

**Simple is best**—stick to one or two key points that you would like to communicate to your audience and come up with a variety of ways to get them across. This is one way to ensure that you do not try to cover too much material. Young learners are already impressed by your very presence; they do not need to be convinced that you are knowledgeable. Likewise, avoid technical jargon as much as possible.

**Ask questions**—Pause after asking a question, to give them time to think, before accepting an answer. Insist on the raising of hands to answer questions and vary who you call on for answers in order to include everyone. Also, take care how you handle wrong answers—break down the question into smaller steps if you can to encourage success.

## Our Vision, Mission, Goals & Values

### Vision

Inspiring a life long interest in science in children and youth. Creating a greater awareness and understanding of science and the scientific community among the public.

### Mission

To increase science literacy. To connect volunteer scientists, technologists, engineers, and mathematicians with teachers, students and the public to develop and promote scientific and technological literacy.

### Goals

- To foster and promote the communication of science and scientific attitudes through all possible channels including the educational systems, the news and broadcast media, public displays and events.
- To stimulate local scientific and associated societies, agencies and businesses to become more involved in and to promote public awareness of science activities and attitudes.
- To serve as a body with which other organizations may liaise and cooperate in order to meet objectives of mutual benefit.

### Values

SATC is formed around a core set of values and beliefs that are widely held by stakeholders and are believed to be of importance to the broader community. These values form the thread that links together the organization, its programs and services that include:

- A passion for science in a non-parochial sense
- Integrity and relevance of science and an understanding and appreciation of how science reacts with the world around us
- Empowerment through mentoring and sharing of knowledge and experiences
- Commitment to science and to SATC
- Inspiring curiosity, wonder and innovation

## Our Programs and Services

### Scientists & Engineers-in-the-Classroom

Scientist or engineer led presentations, “hands-on” classroom activities and demonstrations related to any of the topics of the Alberta Education Program of Studies bring to the students materials, ideas, and concepts that only an expert scientist or engineer can offer.

SATC matches enthusiastic scientists, engineers and technologists with requests from schools in the southwestern Alberta region. Volunteers share their passion for science and engineering, explain the relevance of science to everyday life and provide information about science-related careers. Visits include hands-on activities or engaging demos that enhance student learning and get students excited about science! Teachers learn from the presentations too, impacting future classes.

A partnership with APEGGA has allowed SATC to offer this program. Welcome to the APEGGA volunteers who are making a significant contribution to the success of this program.

This free program is available to all schools in the Lethbridge area by request to the Program Coordinator.

### Science Fair

Many budding scientists get excited about science when they participate in a science fair. SATC facilitates Sci-Fusion, a local event combining the Regional Science Fair and Science Olympic events in one weekend!

Sci-Fusion is an opportunity for students from grades 4 to 12 to apply the scientific method to conduct research. The results of their research are presented through their project displays in their school-wide Science Fair and then again at the regional event, Sci-Fusion. Each year winners from Sci-Fusion are invited to participate in the Canada Wide Science Fair.

Volunteer judges for this event are greatly appreciated. Volunteers are needed to provide students valuable feedback on their work. It does not matter if you have never judged a fair before, or even if your background is not entirely science. We want you to feel that you have learned something from the kids as you leave the fair, for it is the kids that will be doing all of the teaching.

## Planning your Presentation

*Adapted from: Science with Impact, 2006 Let's Talk Science Participant Workbook*

**Decide what you will cover**—One or two key points are enough for one session.

**Decide how you will get you key point across**—For the most part, hands-on activities are best for learning. Consider “what will they do” as the primary question, and “what will I do” as secondary.

**Write out a plan**—Include your objectives for the session, what you and the group will do, how much time each activity will take and the materials needed. If you make a copy of the plan, the teacher might be able to repeat the presentation in the future.

**Practice**—to ensure that the plan works as you anticipate and that the time allotted is appropriate.

**Be flexible**—Things do not always go as anticipated. Have extra materials to engage the group if things finish earlier than planned. Think about what you will cut out if things take longer.

**Plan some time**—within your presentation for discussing what scientists & engineers do and potential studies/careers in science & engineering. It is your unique perspective on these topics that can really enrich science experiences for youth.

**Use variety in your approach**—People differ in the ways they learn, as well as their knowledge and skills bases. You can make your presentation more effective by including a variety of approaches, media and activities.

**Look at the curriculum**—Educators have a responsibility to ensure that certain topics are covered for certain age-groups. Tailoring your presentation so that it fits within the curriculum may be highly appealing to teachers. The curricula will also give you a good idea of the kinds of things that the students have already learned- and things they have not.

**Think about the resources**—materials, equipment demos and books you might be able to bring into the classroom. Items that are an everyday part of your scientific world could be inaccessible to this group. Is there anything you could leave behind in the classroom?

**Consider safety**—Check to see if there are any restrictions regarding animals, chemical use or foods at the school.

**Work with the teacher**—Teachers understand the students, their daily routine and how they learn. Working with a teacher as a professional partner will go a long way to ensure that your efforts will result in learning success.

## Planning a Successful Classroom Visit

*Adapted from: Science with Impact, 2006 Let's Talk Science Participant Workbook*

**Prior to the Visit**—Once your visit is confirmed, discuss the logistics of the visit with the teacher or whoever is looking after the event or activity.

- Pay attention to time allotment, handouts, materials and equipment, and space.
- If going into a classroom, ask the teacher about their expectations.
  - What do they hope to accomplish by having you visit?
  - Any suggestions for group management that work well with their group?
  - Tell your education partner about yourself and your areas of expertise so they have some ideas about how you might best be utilized within their program of studies.
  - If you are unsure about the level of language to use for your presentation, consult the curriculum for key concepts and vocabulary beforehand.
  - Work together with the classroom teacher to find out if you are on the right track. Recognize that the teacher is a trained professional with plenty of experience with learning, teaching and classroom management —remember that you are a team with complementary expertise.
- Plan your activity in advance and practice it to make sure it works in the time allotted, and have flexibility built in so that you can adjust to an activity that takes more or less time than expected.

### During the Visit

- Pay attention to safety at all times and never allow an educator to leave you unattended with a group as you won't know all of the school's emergency procedure information.
- Do not be afraid to be imperfect; it is acceptable for role models to say 'I don't know'.
- Share yourself—the challenges you have overcome in science, engineering and math, technology end education.
- Be enthusiastic, have fun and enjoy all that young, curious minds have to offer.

### Following the Visit

- Reflect on the impact your presence had on the group—what worked, what could be improved for next time?
- Follow-up with the teacher and get their feedback
- Share your experience with other scientists/engineers, encourage them to follow your example and make a difference to youth.

Online Resource—Sharing Science with Children: A Survival Guide for Scientists & Engineers.

<http://www.noaa.edu/education/ncmlssg.html>.

## Volunteer Opportunities With SATC

**Classroom or field trip presentations** – give classroom presentations on various science and engineering related topics to Lethbridge and surrounding area schools through the Scientist and Engineer in the Classroom program.

**Science fair judge** – participate in local, regional science fairs.

**Mentor to new volunteers** – support less experienced volunteers while they are getting started.

**Career mentor** – participate in school Career Fairs or career talks in individual classrooms.

**Board member** – help determine SATC's mission, purpose and policies. Ensure adequate resources are available and used effectively and help raise the organization's profile in the community.

**Display/Events volunteer** – assist in coordinating hands on science activities and displays at public events in the Lethbridge area.

## Volunteer Application Process

All applicants must complete a volunteer registration form to be signed by two references. An interview will then be arranged to determine the applicant's suitability, expertise and areas of interest to provide background about SATC and to provide an opportunity for questions. The Program Coordinator or Executive Director will contact the applicant as soon as possible after the meeting to arrange for volunteer training and orientation at mutually convenient times.

## Volunteer Right, Responsibilities & Benefits

### Volunteer Rights

- Connect with meaningful assignments within scope of experience
- Participate in volunteer orientation session
- Recognition of accomplishments
- Receive feedback and suggestions from SATC staff, teachers and students

### Volunteer Responsibilities

- Participate in training and accept feedback regarding your presentations
- Provide SATC with feedback on the visit
- Give adequate notice of volunteer resignation or change in availability
- Give notice of a change of contact information

**To protect yourself, Southern Alberta Technology Council and all our volunteers please observe the following points when representing SATC in a school setting or on a field trip.**

- Report to the school office on arrival (even if you know the school) and follow their procedure for signing in and being escorted to the classroom.
- The teachers must be present at all times and is responsible for the students.
- Avoid touching students.
- Channel any follow-up questions from students through their teacher – if they have questions at a later date have the teacher contact you rather than providing students your contact information.
- Future requests for scientist visits should be made to the SATC office. This protects your privacy, ensures your liability coverage and standardizes procedures for both teachers and volunteers.

### Volunteer Benefits

- Share your passion for science with students
- Encourage student participation in science - use your creativity
- Fulfill a need in the community
- Help to break the stereotype about scientists
- Gain valuable experience and polish your presentation and communication skills
- Provide information about careers in science and technology
- Volunteer recognition events, awards and networking events

## Procedure for Classroom Visits

**Step 1**—Teachers initiate the process by contacting SATC and providing information on the topic, grades, number of classes and students and approximate date requested for the visit. Teachers are advised to allow 4-6 weeks notice.

**Step 2**—SATC staff match the request with an available volunteer and give the teacher's contact information to the volunteer.

**Step 3**—Volunteers contact the teacher to plan the presentation and the visit. Teachers provide the volunteer with the request details and expectations. The discussion that occurs at this stage is essential to ensure that the visit is successful for everyone involved. More than one phone call may be needed.

- Confirm the date, time, age/grade, number of students, number of presentations.
- Confirm the topic.
- Understand the teacher's expectations (i.e. hands-on activities, career information, special needs adaptations, vocabulary to use, how the visit fits into the science unit)
- Clarify the volunteer's requirements (i.e. classroom set-up, projector, supplies).
- SATC volunteers will be identified by their nametag which is to be worn throughout the school visit.

**Step 4**—Keep SATC informed. If changes are necessary or if a communication breakdown occurs let SATC staff know.

**Step 5**—Once arranged please inform SATC staff of the date and details of the planned visit for record keeping.

**Step 6**—Teachers should thank the volunteer. Notes from students are always appreciated and can be sent through SATC.

**Step 7**—SATC staff follows up with the teacher to garner feedback and evaluation. Volunteers will also be contacted for feedback. The statistics are used in grant applications to ensure that SATC programs for students continue to run at no cost to the schools and volunteer feedback is used to improve the program.

**Note:** Teachers are advised to make future requests for Scientist & Engineer visits through SATC out of respect for the time and privacy of volunteers.