

Volunteer Manual



"You never know which student in the class may be taking their very first steps toward a career in science."

ASN volunteer John Cox
Associate Professor, Department of Earth Sciences, Mount Royal University



Alberta Science Network - What We Do

Our unique science, engineering, and technology-related presentations complement the Alberta Education Science Curriculum, make the connection to the real world, and get kids excited about science!

Through personal interaction with scientists, engineers and technologists, students and teachers have the opportunity to learn first-hand about the science that impacts our daily lives, to increase their understanding of scientific concepts, to evaluate information, and to make informed decisions.

Formed in 1991 as the Calgary Science Network, in January of 2014 we joined with affiliates operating in other centres across the province and became the Alberta Science Network. ASN has a provincial mandate to offer engaging programs to students, their teachers, and the general public through our branches in Calgary, Edmonton, Central Alberta, and Northern Alberta, and with affiliate networks in Lethbridge and Medicine Hat.

Core programs include:

- ... Scientists & Engineers-in-the-Classroom (SEitC)
- ... Teacher Workshops
- ... Community Events
- ... Regional classroom resources

Read more on our website www.albertasciencenetwork.ca

ASN is generously supported by the provincial government, corporations, foundations, and many individuals. Donations-in-kind and services-in-lieu also support this program.

Uniquely serving Alberta for over 20 years, our volunteers have reached hundreds of thousands of students across the province, sharing their passion for science - one classroom at a time!

Mission

We bring science to life for kids through hands-on activities and provide educators with tools and resources to get kids excited about science.

Vision

Kids inspired by science who have fun discovering its relevance to everyday life.

Welcome

Thank you for your interest in volunteering with Alberta Science Network (ASN). Volunteers are our most valuable assets. It is the 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 are integral to our changing world. Interaction with credible and realistic scientific role models can have very positive effects on attitudes towards science and career decisions. Each school year scientists and engineers like you participate in hundreds of visits to Alberta classrooms, volunteering their time, interacting with Alberta students and their teachers, and getting kids excited about science!

What is 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

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

Privacy Policy

Any personal information collected by ASN will be used to establish and manage a volunteer relationship in accordance with ASN's Privacy Policy www.albertasciencenetwork.ca/pdfs/ASN_Privacy_Policy_2014.pdf.



Volunteer Rights, Responsibilities & Benefits

Volunteer Rights

- ...Meaningful assignments
- ...Unlimited access to ongoing internal training and support
- ...Recognition of accomplishments
- ...Feedback from teachers and students facilitated by ASN
- ...Your choice of Alberta Education Science Curriculum presentation topic(s)
- ...Your choice of times, dates, number of presentations and schools

Volunteer Responsibilities

- ...Complete assignments in an effective and professional manner
- ...Focus on the needs of the students and teachers
- ...Give timely feedback and contact information updates
- ...Be enthusiastic and have fun!

Volunteer Benefits

- ...Share your passion for science
- ...Inspire the next generation of scientists and engineers
- ...Gain valuable experience as a presenter
- ...Be a member of a like-minded team and meet others with similar interests



Volunteer Orientation and Training

An orientation interview determines the applicant's fit for current volunteer openings and provides a good opportunity to ask questions. Key information about ASN's expectations and policies will be reviewed.

Training begins following the interview and may include:

- ...Viewing a presentation by an experienced volunteer
- ...Attending a training workshop
- ...Coaching/mentoring by an experienced volunteer or Program Coordinator
- ...Access to online resources, ASN materials, kits, and handouts



Volunteer Opportunities with ASN - vary by region

Scientists & Engineers-in-the-Classroom (SEitC) - give three or more presentations per year to classrooms in your region

Teacher Workshops - (co)-present topic and grade-specific, professional development workshops to teachers.

Science Fair Judge - city, regional, and/or Treaty 7, and Treaty 8 science fairs.

Community Events - Star nights, Science Road Shows, field trips, etc.

Casino Volunteer - one-time commitment that helps sustain ASN's programs

Other opportunities are available by region. For an up to date list please visit the regional resources pages on our website or ask your local coordinator.

Classroom Visit Procedure

Step 1 Teachers submit online request to ASN.

Step 2 Your local ASN Program Coordinator matches the request with a suitable, available volunteer and gives request details (topic, grade, class size, teacher's contact information) to the volunteer.

Step 3 Volunteers contact the teacher to plan the presentation, and the visit. Sharing details and expectations at this stage is essential to ensure the visit is a success for all. It may require more than one email/phone call.

...Confirm the date, time, age/grade, number of students, and presentations.

...Confirm the topic.

...Understand the teacher's expectations (i.e. hands-on activities, special needs adaptations and how the visit fits into the science unit).

...Clarify volunteer requirements (i.e. classroom set-up, projector, supplies).

...Follow protocol regarding school visits/field trips as described on page 7.

Step 4 Keep us informed. If changes are necessary or if a communication breakdown occurs, inform your Program Coordinator promptly.

Step 5 Once arranged, please tell the Program Coordinator the date and details of the planned visit for our records.

Step 6 Feedback from teachers and volunteers is used to improve the program and statistics are used in grant applications to ensure that ASN programs for students continue to run at no cost to schools. Please use the online forms at www.albertasciencenetwork.ca/involved_feedback.html.

Important! All requests for scientist visits **must** be made through ASN out of respect for the time and privacy of our volunteers and for their protection.

Even if you have visited a particular school before or know the teacher personally, please direct teachers to the ASN online request form at www.albertasciencenetwork.ca/forms/program_request.html to arrange future visits.

Protocol for Classroom Visits and Field Trips

Important points for volunteer safety

- ...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
- ...Wear your ASN nametag throughout the school visit
- ...The teacher must be present at all times and is responsible for the students' behavior. If the teacher leaves, you follow - no exceptions!
- ...Avoid touching students
- ...Use designated staff washrooms while in the school
- ...You may not take colleagues or family members to classroom presentations for security reasons
- ...Do not give students your contact information – ask the teacher to forward any questions to you or channel them through the Program Coordinator



Planning your Presentation

Timing: Know the time allocation - stick to it!

Find out how long the teacher requires the presentation to be.

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.

Make time at the end (or, even better, throughout your presentation) for student questions and answers. It is important to engage your audience.

Content: Include hands-on activities and be grade appropriate

Use 50% or more of your time for hands-on activities, demonstrations and experiments that involve the students. Students enjoy games, role playing, or “stations” that small groups can rotate through. Keep the students engaged by breaking up periods of talking with activities, or questions.

Look at the curriculum - educators have a responsibility to ensure that certain topics are covered for certain age groups. This can be challenging, but tailoring your presentation to fit the curriculum is very appealing to teachers. Read www.albertasciencenetwork.ca/involved_resources.html for curriculum information and then plan simple activities that demonstrate **a few** of the **Specific Learner Expectations (SLEs)** for your topic. Consider “What will they do?” as the primary question, and “What will I do?” as secondary.

Practice the activities (with children if possible) so that you can give clear instructions, have all materials ready, and know how long the activity will take.

Be prepared - this cannot be overemphasized! Assemble all the materials, equipment, demos, and books you are taking to the classroom. Items that are an everyday part of your scientific world may be inaccessible to this group and of great interest. Is there anything you can leave behind in the classroom?

If you need water, electricity, projector, etc. arrange it in advance!

Be focused - there isn't time to cover the whole topic! Identify three main ideas/concepts that you and the teacher want the students to learn. Young learners will be impressed just by your presence.

If you have ideas for activities that take longer than the time allotted, consider leaving a take-away activity with the teacher at the end of your presentation.

...continued

Speak at a level that is appropriate for the students' grade level and check that activities are grade appropriate. Introduce topic-specific vocabulary words, and use them several times. Don't use technical jargon, high level graphs, or examples that are not at the students' grade level.

Use variety in your approach - children differ in the ways they learn and will not have the same knowledge and skill levels. You can make your presentation more effective by including a variety of approaches, media, and activities. Varying the tasks and approaches you use will retain everyone's attention.

Collaboration: Work with the teacher

Work in advance with the teacher. Ask if there are specific SLEs they want you to focus on. Confirm the length of the presentation, the date and time. Briefly review the presentation with the teacher and ask if it will meet their needs.

Safety is critical - check to see if there are any restrictions regarding animals, chemical use, or foods at your venue. Some things should be a demonstration rather than a student activity!

Chemistry activities/demos may require the students to wear safety goggles which adds to the overall experience. Ask if a class set is available at the school or ASN!



Resources to get you started

Selected online resources are kept up to date at www.albertasciencenetwork.ca/involved_resources.html. Send suggestions for inclusion to communications@albertasciencenetwork.ca.

ASN Teacher Workshops - attendance is free for SEitC volunteers but please pre-register with workshops@albertasciencenetwork.ca. Upcoming workshops are at www.albertasciencenetwork.ca/programs_workshops.html.

ASN Resource Kits - may be available for loan from your local Program Coordinator.

Sample time frame template

Activity (presentations will vary - this is a starting point!)	Time
Brief introduction: Hi my name is _____ and I'm really pleased to be here. I am an engineer/biologist/researcher and I work at the University/company/airport. I use science in my job every day because...	2 minutes
Engage the class: What is science? What do scientists and engineers do? Can you think of ways we use science every day?	3 minutes
Introduce the topic: Your teacher has told me that you have been studying _____ for two weeks. What have you learned already? What do you like about this topic? Why do you think it's worth learning? Today we are going to talk about Write it on the board/chart if possible. Describe your 2-3 main points with simple examples. Describe /show the activities that the students are going to do.	5 minutes
Hands-on activity (game, stations, role playing, etc.) Walk around asking questions about what's happening. Did you expect that? Why do you think that happened? Will it be the same if you do the activity again?	30 minutes
Wrap it up: What did you learn? Did you have fun? Questions - be prepared to cut off "stories" and to give warning when there's time for only two more. Thank the students and teachers.	5 minutes



Tips for Effective Presentations

Be early - allow enough time to set up and to observe classroom dynamics.

Be aware of the teacher - maintain frequent eye contact with the teacher. Their gestures will be a guide to help you determine the appropriateness of pace and content, and you can request “help” when needed.

Be aware of time! - check the clock when you start and stop talking at the time agreed, even if you are not “done”. Allow time for questions.

Be aware of the students’ abilities - speak at a level that is appropriate to the students’ grade level. Introduce three or four new vocabulary words, use them several times and write them on the board/chart if possible.

Be enthusiastic! - research shows that enthusiasm is extremely motivating. It’s also contagious! So it is OK to exaggerate a bit and be larger than life.

Be engaging - ask open-ended questions frequently (How? Why? What?). Wait a few seconds after asking a question to allow the children time to think and to form an answer. Insist on the raising of hands to answer questions.

Be relevant - show connections between your topic and the real world, using examples that will be familiar to the students. Teenagers are interested in careers, so allow time to talk about traditional and emerging careers in science/engineering. Describe your work/career path and educational background.

Be inclusive - choose respondents around the class so that no one is left out and choose activities and questions that allow everyone to participate and succeed. Break down questions into smaller steps to encourage success. Be prepared for incorrect answers - give clues and hints to give confidence or ask other students to help.

Be flexible - you may need to cut out something on the fly if time is tight.

Be yourself - allow the learners to share, too. Personal interaction with a scientist or engineer is what makes the presentation unique and much more effective and lasting than books, videos, or online activities.

Summarize - three main ideas/concepts in your wrap up. Ask “So what have we learned today? We learned that ... 1, ... 2, ... 3.”

Have fun and everyone else will, too!

Presentation Checklist

Title	Topic -something catchy to write on the board
Target audience	Grade level
School information	Address, phone number, parking
Teacher(s)	Name(s)
Safety	List any safety considerations and strategies to address them.
Materials list	Group by activity and have enough for all students/groups. Keep instructions simple and age appropriate. Remember that younger students take more time to read and write which could leave less time for science activities!
Equipment required	Arrange ahead of time for A/V equipment, chart stand, sink, etc.
Key words/phrases	Keep it simple—two or three key words and/or phrases.
Learning objectives	Answer these three questions: <ol style="list-style-type: none"> 1. What do you want participants to learn? (refer to curriculum) 2. What do you want participants to do? 3. How will you know the participants were successful?
Activities	Detail the activities - plan to change about every 10 minutes for stations (building a bridge or a ski jump will take longer). Create a subtitle for each activity.
What can be cut?	If you run out of time, what can you eliminate?
Possible extensions	How can you extend the presentation if there is extra time?

After the presentation

Self-evaluate

... What went well and what didn’t?

... What will you do differently next time?

... Did participants make any interesting comments?

... Use feedback from the teacher and ASN to improve for next time.

Please submit your feedback at www.albertasciencenetwork.ca/involved-feedback.html. You will receive feedback from the school via your local Program Coordinator.

Judging Science Fairs/Science Olympics

If you are wary of presenting to a classroom, science fair judging may be for you!

Fulfill your commitment - it is difficult to find replacements, at short notice.

Be prepared - find out if marking criteria or pre-set questions will be provided to the judges. If not, many examples of science fair rubrics are available online.

Put the student at ease - being judged is a big deal and you are an authority figure! If time permits, introduce yourself and describe your background. Use appropriate body language such as bending down to talk at eye level, show that you are listening attentively and smile! Compliment the student on some aspect of their project that draws your attention. Before asking difficult questions, start 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, whether the student's project is a winning one or not. Show praise wherever possible and 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 fair - if you are very knowledgeable about the subject of a student project, don't expound too much. This might give the student an unfair advantage if your words are 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 knows rather than what they do not.



Volunteering at Community Events

Recognize that community events are less structured than a classroom setting.

Be prepared - Youth at community events can become very excited and loud. Have enough volunteers for the number of participants you expect.

Plan your activities - Community events require hands-on activities that are repeatable. Is there something that participants can take away? Control access to the equipment and materials to a small number at a time. Test all the activities ahead of time, include tried and tested activities and add at least one 'crowd pleaser'.

Be informed - Ask your hosts about what they hope will be achieved. Invite group leaders to participate and plan a role for them.

Use a variety of age-specific activities - Community events often include youth from a wide range of ages. Choose a topic that allows you to design specific activities for different levels of engagement, knowledge, and skills.

Go with the flow - Embrace related topics that are of interest. 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. Prepare answers to simple questions about what you are doing and why.

At the event - Set boundaries and explain the rules ahead of time. Put instructions on task cards or posters. Involve others in preparatory tasks to keep everyone occupied. Consider doing the activity in steps—first you do it, then invite youth to participate. Ending the activity at the right time leaves the participants feeling inspired and excited about science.



Index

Classroom protocol _____	p. 7
Community events/Science Olympics _____	p. 14
Presentation tips _____	p. 11
Presentation sample template _____	p. 10
Resources _____	p. 9
Science Fair judging _____	p. 13

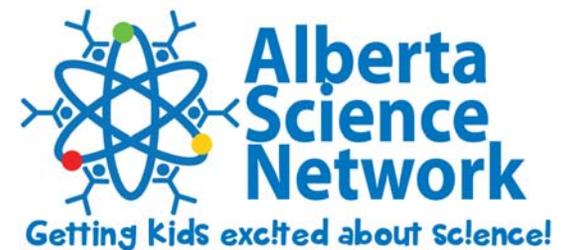
Acknowledgements

Science with Impact 2006: Let's Talk Science Participant Workbook

Notes

"April 23, 2001 was my first presentation. What an experience! What a surprising depth of questions from the students! Since then, my records show that I have visited 98 schools and given 184 presentations to over 6000 students. But these are just numbers. Students continually astound me! They energize me, inspire me, humble me, teach me!"

Dave Fowlow, senior flight instructor and enthusiastic ASN volunteer



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