Tips for Outreach Program/Chemists in the Classroom Volunteers

Have fun!
Have fun! That is the most important ingredient for Outreach Program visits. The audience will appreciate your enthusiasm, and young people may respond by wanting to be future chemists.

If you are a new Outreach Program volunteer, you will be paired with an experienced demonstrator until you feel comfortable with the experiments and interacting with audiences. These experienced volunteers are a great resource for advice.

Each one of you will have your own presentation style, so relax and enjoy the experience. Our demonstrations are safe and reliable. Your role is to explain the mechanics of the experiments in terms that the audience can understand, appreciate, and apply to every day life. Our outreach program is an opportunity for teachers and students to transform classrooms into laboratories and themselves into real scientists.

Demonstration tips
• Don’t fill the entire presentation time with your voice: silence is OK.
• Involve your audience as much as possible
  o Ask for volunteers
  o Get them to think about the experiments
    ▪ What did they observe?
    ▪ What can they hypothesize from their observations?
    ▪ What are some practical applications?

Classroom tips
• Talk to the teacher about the specific purposes of and logistics for your visit:
  o Are you . . .
    ▪ serving as a role model?
    ▪ presenting a lesson?
    ▪ offering career information?
  o Type of presentation requested
    ▪ small-group demonstration
    ▪ large-group demonstration
    ▪ hands-on/minds-on investigation
    ▪ discussion groups
    ▪ school assembly program
  o Length of presentation
    o If you plan to take photos, ensure that the teachers obtain parental permission ahead of time
      ▪ photos can be given to the teacher for his or her use, and used by the Department of Chemistry to promote its outreach programs.
  o Ask about the demographics of the audience, particularly age, grade level, and science-knowledge background.
    o Tailor the experiments to the grade and ability level of the students.
    o Find out what science experiments the students have already done, or will be doing in the future.
• Logistics
  o Number of students
• Facilities
  ▪ arrangement of the room
  ▪ availability of running water and electricity
  ▪ is the room carpeted
    • ensure that fire extinguishers are available
  ▪ proper ventilation of the room for the activity you are planning
  ▪ materials and supplies already available for student use
    • What special equipment, supplies, and safety gear should you bring?
    • size and amount of the material that you will need

• Choose experiments and demonstrations appropriate for your audience
  o Relate the experiments to real life experiences, illustrating the message that chemistry is all around us
  o Allow the students to express their own explanations of what they are observing
    ▪ remember that the students’ answers don’t have to be absolutely correct
      • a student’s results are not wrong simply because they may differ from another student’s results.
      • challenge them to explore if their explanations fit
  o Explain scientific concepts currently, but in ways that the students can understand
  o It’s OK to say,
    ▪ “I don’t know.”
    ▪ “Let’s find out.”
    ▪ “What do you think?”
    ▪ “We don’t know. We’re trying to figure that out. Perhaps you can be the scientists that figures that out
  o Try to involve as many students as possible

• Become a resource for the teacher
  o Provide your contact information
  o Share a list of follow-up questions, research topics, or discussion topics

• Make safety the first priority
  o Wear goggles and lab coats
  o Provide goggles/coats to volunteers
  o Ensure that there is proper adult supervision
  o Ensure that the audience is safe
  o Demonstrate proper demonstration techniques and procedures
  o Consider the impact of the demonstrations, particularly if they involve explosions and fire: i.e., Energy and U presenter finds that children younger than 3rd grade do not like loud explosions.
    ▪ also remember that most off-campus facilities are not equipped to handle these types of demonstrations
  o Do not bring concentrated reagents, if they are not needed
    ▪ complete preliminary preparations that are not integral to the goal and success of the lesson prior to entering the classroom
    ▪ emphasize that all chemicals must be treated with respect
  o Take only the amount of chemicals that are needed
  o Remember to leave absolutely no waste behind
    ▪ do not throw any waste/garbage in garbage cans at the schools
    ▪ bring garbage bags with you