



AIR & WASTE MANAGEMENT
A S S O C I A T I O N

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PRESENTER'S MANUAL

For
Teacher-Training
Workshops

Featuring
A&WMA's
Environmental Resource Guides (ERGs) –
*Air Quality & Nonpoint Source
Pollution Prevention*

November 2001



Presenter's Manual For Teacher-Training Workshops Featuring A&WMA's *Environmental Resource Guides (ERGs) – Air Quality & Nonpoint Source Pollution Prevention*

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For information about this manual or to order copies, please contact:

Public Education Program
Air & Waste Management Association
One Gateway Center, 3rd Floor
Pittsburgh, Pennsylvania 15222 USA
<http://www.awma.org>
Phone: +1 412-232-3444
Fax: +1 412-232-3450
Email: info@awma.org



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AIR & WASTE MANAGEMENT
ASSOCIATION

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INTRODUCTION

The purpose of this *Presenter's Manual* is to help you in your preparation and implementation of events to train elementary and secondary education teachers on environmental basics and issues. This manual provides agendas, scripts, overhead transparency masters and workshop materials to aid workshop leaders in their efforts to present teacher-training programs featuring the Air & Waste Management Association's *Environmental Resource Guides (ERGs)* and other A&WMA materials.

The Presenter's Manual is designed to serve as a tool to facilitate preparation and delivery of teacher-training workshops on the content and use of the *Environmental Resource Guide*. It was designed to be most effective for preparing instructors to conduct a workshop consisting of about 20 people, but there are suggestions on other uses as well. In developing this manual, it has been assumed that the user is familiar with basic training techniques and instructional methodologies. This *Presenter's Manual* is not intended to be a Train-the-Presenter's Manual.

Use what is useful, remove what is not, and add your own presentations and program ideas. This manual should grow as your teacher-training program grows and should also become a valuable tool for future presenters in your organization.



PLANNING YOUR EVENT

A teacher-training workshop needs to be many things. It needs to be informative, easy to understand, to the point, and most of all, fun. This is an opportunity to provide good science and to lead teachers toward better understanding of the balances and complexities of environmental management.

The first step is to identify Association members who are willing to try this new program. They do not need to be professional teachers or trainers. Teachers already know how to teach. You, the A&WMA presenter, represent the environmental industry as a whole, and your profession and your company as an individual. Your professional knowledge in environmental issues and actions is what is most useful to teachers in this workshop event.

Next, you need to decide the length and type of your workshop. This manual contains suggested agendas for 2-, 4-, and 6-hour workshops. Some groups have planned two-day training sessions, have included tours of industrial facilities, or used the materials in short one hour presentations. It simply depends on your purpose, your audience, your budget, and your assistance. If you are having your first workshop, it would be best to start with one of the agendas included.

The Air & Waste Management Association's QUIKTUTOR provides sample letters and additional tips in setting up a workshop. One of the difficult steps of starting workshops is in contacting teachers to let them know that you are available to provide this service. Check with school associations and get lists of schools and teachers in your area. You may choose to have a workshop directly with one school. This may be a good way to start.

Prior to having a workshop you may choose to have a "Train-the-Presenter" event. Take several hours to go through the presentations provided in this manual and try a number of ERG activities. Get an understanding of the purpose and process of each activity. You should never present an activity that you have not done yourself. Some materials will need to be assembled prior to the workshop. Keep a collection of prepared materials to make future workshops easier.

One other option you may want to consider is to obtain educational credits (e.g. continuing education units or CEUs) for workshop participants. Because this process varies, you may want to check with a local school district, intermediate unit, or state department of education. In most cases, you will be asked to submit an agenda built around a specific time requirement per educational credit, names and biographies of presenters, and sample lesson plans. Although this requires more work, you may find the time investment worth your while as more teachers may end up attending your workshop.

You may also want to think about the feasibility of including a local tour in your workshop. Some possibilities include: power plant, waste-to-energy facility, manufacturing facility with air pollution control equipment, a river cruise, or a landfill.



GETTING STARTED

Workshop Registration

- ✓ The workshop materials should be set-up before anyone arrives. Copies of the ERGs should be on display. Also, examples of activities not being presented could be displayed.
- ✓ Have registration packets ready for all participants.
- ✓ Provide nametags for all participants and presenters. This allows for more effective and friendly communication.
- ✓ Mingle with workshop participants as much as possible before the workshop begins. This will help to build a rapport between presenters and participants and let the teachers know that this is a quality program.
- ✓ Start on time.

Introductions

- ✓ All presenters should introduce themselves or be introduced.
- ✓ Unless the group is too large, all participants should introduce themselves, say what grade(s) and subject(s) they teach, and explain if there are special interests that brought them to the workshop. If the air quality icebreaker (described later in this section) is used, wait until afterwards to have the participants introduce themselves.
- ✓ Refer participants to the workshop agenda (which should be included in the registration packet). This will give participants an idea of what to expect. Then, do your best to stick to your timeline, including breaks.

Tips

- ✓ Find out as much as you can about the room arrangement and other logistics before you head off to your workshop. Are participants in another workshop before yours? What will the group size be? Are there tables or a podium? What about A/V equipment?
- ✓ Think about your audience, their purpose and needs. Are they comfortable with the topics, or are they beginners? Do they know a great deal about nonpoint source pollution but not about air quality? If so, tailor your program to their needs.
- ✓ The presenter should be familiar with local issues, and be able to bring them into the presentation. This material, no matter how intriguing to you, will quickly become dry if it does not relate to the participant somehow. By making the connections to a local industry, to household chemicals, or to a new highway, the connections to the material are made, and your presentation will be remembered. To help connect the material to local issues and participants' personal experiences, collect newspaper articles or other materials, or note any related activity, about one month before the workshop.
- ✓ Use common, everyday language that everyone will understand. If you're an air pollution control engineer, avoid using technical jargon. You won't impress anyone with your knowledge if they don't know what you're talking about.

- ✓ The presenter should encourage participant interaction by asking questions during this presentation instead of continuously reading from the script. This creates a dialogue and allows the participants to become actively involved throughout this session. Also, create an open atmosphere for asking questions from the start. Ask participants to stop you any time they have a question.
- ✓ Use attention-getters like stories, quotes, challenges, statistics, humor, or questions to draw in your audience.
- ✓ Use eye contact. Talk to your audience, not your overheads. This makes you more personable and also allows you to read your audience's body language. Are they yawning, bored, too cold? If they get restless, change the pace.
- ✓ Project enthusiasm. Use vocal variety in terms of rate, pitch, tone, and volume.
- ✓ Have fun and smile! Likely, if you don't, the participants won't either.
- ✓ Adults learners need to:
 - feel comfortable (think about the room temperature and seating, try an ice-breaker, provide flexibility and choice)
 - be successful (give positive reinforcement)
 - be involved (make the learning active – try games, skits, or role plays)
 - know “how” (apply to the real world – use case studies)
 - know “why” (make associations – use case histories, discussions, field trips, and reflection)
- ✓ Remember that effective learning requires:
 - active involvement of the learner
 - applying information by the learner
 - having fun
 - useful information
 - feeling of satisfaction for both the learner and teacher

Working to Meet the *National Science Education Standards*

The *National Science Education Standards* (National Research Council, 1996) present a vision of learning and teaching science and indicate that professional development for teachers should be analogous to professional development for other professions. In this aspect, A&WMA has a unique opportunity to help educate teachers through its *Teacher-Training Workshops* and meet the *Standards for Professional Development of Teachers of Science* as outlined in the *National Science Education Standards*. These *Standards* were designed to guide everyone who has a role in teachers' professional development programs, including A&WMA.

The *Standards for Professional Development of Teachers of Science* (National Research Council, 1996) include:

Professional Development Standard A:

Professional development for teachers of science requires learning essential science content through the perspectives and methods of inquiry. Science learning experiences for teachers must:

- Involve teachers in actively investigating phenomena that can be studied scientifically, interpreting results, and making sense of findings consistent with currently accepted scientific understanding.

- Address issues, events, problems, or topics significant in science and of interest to participants.
- Introduce teachers to scientific literature, media, and technological resources that expand their science knowledge and their ability to access further knowledge.
- Build on the teacher's current science understanding, ability, and attitudes.
- Incorporate ongoing reflection on the process and outcomes of understanding science through inquiry.
- Encourage and support teachers in efforts to collaborate.

Professional Development Standard B:

Professional development for teachers of science requires integrating knowledge of science, learning, pedagogy, and students; it also requires applying that knowledge to science teaching. Learning experiences for teachers of science must:

- Connect and integrate all pertinent aspects of science and science education.
- Occur in a variety of places where effective science teaching can be illustrated and modeled, permitting teachers to struggle with real situations and expand their knowledge and skills in appropriate contexts.
- Address teachers' needs as learners and build on their current knowledge of science content, teaching, and learning.
- Use inquiry, reflection, interpretation of research, modeling, and guided practice to build understanding and skill in science teaching.

Professional Development Standard C:

Professional development for teachers of science requires building understanding and ability for lifelong learning. Professional development activities must:

- Provide regular, frequent opportunities for individual and collegial examination and reflection on classroom and institutional practice.
- Provide opportunities for teachers to receive feedback about their teaching and to understand, analyze, and apply that feedback to improve their practice.
- Provide opportunities for teachers to learn and use various tools and techniques for self-reflection and collegial reflection, such as peer coaching, portfolios, and journals.
- Support the sharing of teacher expertise by preparing and using mentors, teacher advisors, coaches, lead teachers, and resource teachers to provide professional development opportunities.
- Provide opportunities to know and have access to existing research and experiential knowledge.
- Provide opportunities to learn and use the skills of research to generate new knowledge about science and the teaching and learning of science.

Professional Development Standard D:

Professional development programs for teachers of science must be coherent and integrated. Quality preservice and inservice programs are characterized by:

- Clear, shared goals based on a vision of science learning, teaching, and teacher development congruent with the *National Science Education Standards*.
- Integration and coordination of the program components so that understanding and ability can be built over time, reinforced continuously, and practiced in a variety of situations.
- Options that recognize the developmental nature of teacher professional growth and

individual and group interests, as well as the needs of teachers who have varying degrees of experience, professional expertise, and proficiency.

- Collaboration among the people involved in programs, including teachers, teacher educators, teacher unions, scientists, administrators, policy makers, members of professional and scientific organizations, parents, and business people, with clear respect for the perspectives and expertise of each.
- Recognition of the history, culture, and organization of the school environment.
- Continuous program assessment that captures the perspectives of all those involved, uses a variety of strategies, focuses on the process and effects of the program, and feeds directly into program improvement and evaluation.

Using these *Standards*, there are a variety of possibilities upon which A&WMA could act. For example, to strengthen collaboration, you could encourage teachers to invite you, as a professional, to their classrooms to discuss or speak on specific topics or to do a demonstration.

A&WMA Teacher-Training Workshops can provide a safe and rich learning environment in which teachers can ask and address hard questions and continue to learn. Allow time for teachers to share with each other. Teachers often learn equally from instructors and other teachers. Also, continually evaluate your workshop to ensure it is maximally useful for teachers.

“Professional development activities create opportunities for teachers to confront new and different ways of thinking; to participate in demonstrations of new and different ways of acting; to discuss, examine, critique, explore, argue, and struggle with new ideas; to try out different approaches in different situations and get feedback on the use of new ideas, skills, tools, and behaviors; to reflect on the experiments and experiences of teaching science, and then to revise and try again” (National Research Council, 1996, pp. 67-68). With your help, A&WMA can be an important part of this process.

Reference:

National Research Council. 1996. *National Science Education Standards*. Washington, DC: National Academy Press.

Materials Checklist

You may want to bring the following supplies to the workshop, as well as any other props for specific activities you are planning. You will develop your own list once you have done a few workshops, but here's one to get you started.

- Flip chart and easel
- Masking tape
- Non-permanent marking pens, different sizes and colors
- Pens or pencils
- Scissors
- A/V equipment (e.g., slide projector, screen, extension cord, etc.)
- Nametags
- Paper clips, rubber bands
- Supplies and props needed for specific activities
- Resource materials
- Food and beverages

Registration Packet Checklist

You may want to include the following in each of the participant's registration packets.

- Business card(s) or contact information
- Presenter biographies
- Agenda (be sure to include the title of all videos, etc. used and how to get a copy of them)
- An Overview of A&WMA's Teacher-Training Programs* handout*
- Understanding Air Quality* handout*
- Understanding Nonpoint Source Pollution* handout*
- Copies of all activities being presented
- A&WMA's *Environmental Education Materials* catalog (you can photocopy the most updated version)
- A&WMA pamphlets such as *Ozone*, *Hazardous Waste*, etc. (these could be photocopied)
- Section or chapter newsletter
- Lists of favorite environmental education websites or other resources (be sure to refer teachers to A&WMA's homepage at <http://www.awma.org>)
- State Academic Standards correlations (available through your state department of education)

*Included in this *Presenter's Manual*

Icebreaker Activity

Based on “Air Is All Around Us” - *ERG-Air Quality (3-5)*

Materials:

- 78 blue paper or plastic plates (or cut-out circles from blue poster paper)
- 21 red plates or paper circles
- 1 white plate or paper circle
- masking tape to stick plates on the wall
- open wall space

(Note: Be sure to check with the meeting host at your facility that it is acceptable to adhere tape to the wall.)

1. As participants register for the workshop, give them 3-5 plates of assorted colors, and a section of masking tape along with their registration packets. Ask them to put tape on the back of each plate so that the plates will stick on the wall. (Determine the number of participants you expect to attend the workshop. Add the number of presenters. Divide 100 by the total to determine how many plates each individual should get.)
2. Save plates for each of the presenters that are present for this activity.
3. When you are ready to begin, explain that you plan to start the workshop with an icebreaker activity. As a group you will be creating a work of art on the designated wall area.
4. Demonstrate how the mosaic will be created by moving to the wall area and sticking your plates to the wall. With each plate, tell something about yourself - name, work responsibilities, why you are interested in teaching about air quality or nonpoint source pollution, family or pet information, etc.
5. Ask other presenters to follow you, and then participants should start. Be sure to tell them any information you particularly want to know (grade level, school, interest in air quality or nonpoint source pollution, etc.)
6. Encourage the group to continually look at the mosaic as it develops and get them to really believe they are creating a work of art. “Looks like a fish to me! What do you folks think?”
7. After all plates are on the wall, ask the group, “What is it?”. Encourage answers that focus on the shape of the mosaic rather than the color scheme for a short time. If you don’t get an answer such as “Air Molecules,” acknowledge that the work of art looks like a fish, or a tree, and then ask, “Well, what else could it be?”, “What could those colors mean?”, “How many plates are there?”, etc.
8. Get the group to identify that the plates represent the chemical components of air, 78% nitrogen (blue), 21% oxygen (red), and 1% other chemicals including argon, carbon dioxide, water vapor, etc. and compounds we call air pollution (white).

**Air & Waste Management Association
Environmental Resource Guide
Sample Workshop Agenda**

2-Hour Workshop

Topic	Time (minutes)
1. Workshop Registration	-
2. Introduction, Workshop Goals and Agenda	5
3. ERG Background and Layout	5
4. ERG Activity #1	30
5. Regroup	5
6. ERG Activity #2	30
7. Regroup	5
8. ERG Activity #3	30
9. Q & A, Feedback, Closing Remarks	5
10. Workshop Evaluation, Distributing ERGs	5

**Air & Waste Management Association
Environmental Resource Guide
Sample Workshop Agenda**

4-Hour Workshop
Air Quality -or- Nonpoint Source Pollution

Topic	Time (minutes)
1. Workshop Registration	-
2. Introduction, Participant Introductions, Icebreaker (Optional)	20
3. Workshop Goals and Agenda	5
4. Overview of A&WMA's Teacher-Training Program	10
5. ERG Activity #1	30
6. Introduction to Air Quality -or- Nonpoint Source Pollution	35
7. ERG Activity #2	30
8. Break	15
9. ERG Background and Layout	10
10. ERG Activity #3	30
11. Regroup	5
12. ERG Activity #4	30
13. Q & A, Feedback, Closing Remarks	15
14. Workshop Evaluation, Distribute ERGs	5

**Air & Waste Management Association
Environmental Resource Guide
Sample Workshop Agenda**

6-Hour Workshop
Air Quality -and- Nonpoint Source Pollution

	Topic	Time (minutes)
1.	Workshop Registration	-
2.	Introduction, Participant Introductions, Icebreaker	20
4.	Workshop Goals and Agenda	5
5.	Overview of A&WMA's Teacher-Training Program	10
6.	ERG Activity #1 - AQ or NPS	35
7.	Regroup	5
8.	ERG Background and Layout	10
9.	Understanding Air Quality	35
10.	ERG Activity #2 - AQ	35
11.	Regroup	5
12.	ERG Activity #3 - AQ	35
13.	Break or Lunch	40
14.	Understanding Nonpoint Source Pollution	25
15.	ERG Activity #4 - NPS	35
16.	Regroup	5
17.	ERG Activity #5 - NPS	35
18.	Q & A, Feedback, Closing Remarks	15
19.	Workshop Evaluation, Distribute ERGs	10