

Air Pollution Exercise

Overview

Preparation

Review the Participant Guide

A number of web resources are provided in the Participant Guide for use in the activities and as resources. Check all of the websites prior to facilitating the program to ensure that the link is still live and the content continues to be appropriate.

There are no lectures. The instructor's role is to facilitate and ensure that questions are answered. The purpose of these activities is to encourage participants to use resources (largely electronic for this work) to find information and determine how they can increase knowledge about air pollution.

When you form small groups will depend on when in the overall program agenda this exercise is used; if the exercise is at the beginning of a program, allow time for introductions. You may reduce time shifting participants in groups if the room is set up for small groups and participants find a seat in a group.

The group of participants may have a wide range of communication skills, and familiarity with technology. Be prepared to assist with devices and help with accessing web resources.

Resources

- Participant Guide
- Computers, smart phones, tablets, laptops. Enough devices should be available so that each participant has one.
- Ensure that you are prepared with a white board or equivalent and markers.

Agenda (times are approximate)

Overview	5 minutes
Resource 1	10
Resource 2	10
Resource 3	10
Activity 1	20
Activity 2	10
Resource 4	10
Activity 4	15
Activity 5	20
Closing	10

Time Requirement: 2 hours

Number of Facilitators: 1

Format: Small Group Activity

Introduction

This program was developed in response to the need for communities to gain skills to **better identify sources of air pollution and develop ideas about how to limit or avoid** exposures that can impact a person's health. The program and exercises are designed to be interactive and stimulate questions and develop a personal plan for action.

Goals for participants are to better be able to:

- Identify different types of air pollution
- Describe sources of air pollution around them
- Describe the health effects of air pollution (community and individual)
- Identify techniques to reduce exposure in the home and community
- Develop a plan to take further action steps

Refer to the participant handout Introduction and review the objectives. Provide an overview of the types of activities that will be part of the program.

Resource 1

Refer participants to the definitions for particle, gas and vapor sources of air pollution. Ask them as group: "What are major differences among the three forms?"

Review the other terms on the page with the participants

Resource 2

Explain the differences in particle size found in the Participant Guide. Review the graphic comparing particles to sand and hair.

Show the 4 minute video. <https://www.youtube.com/watch?v=Blvos4ppeNM&t=178s>

Ask participants: Where do different size pollutants come from?

Resource 3

Review the air pollution source graphic. Ask participants, “Can you identify at least 1 example of each source?”

Review the two pictures with the class. Ask participants “What are sources of air pollution that you can identify with this diesel powered school bus?” Note VOCs (volatile organic compounds).

Ask for examples of air pollution with flaring with the second picture. Participants may also want to discuss issues surrounding greenhouse gases as another example of air pollution.

Review the chart of type of pollutants

Activity 1

Minimum Content Requirement

- Activity 1 worksheets
- Report back (after Activity 2)

Teaching Method

- Small group activity

Reference materials

- Websites
- Resource 1
- Resource 2
- Resource 3

Questions you may be asked:

1. What should I do when the AQI is high?

See Participant Guide Activity 3.

2. I don't have internet at home, so how do I find what the AQI is?

Be prepared to describe local internet access points to those without it at home. Also, it may be helpful to suggest that participants can involve their children/grandchildren in this activity

3. Do cities and towns put out alerts if the AQI is high?

Not all do. Be prepared to answer this question for the area of your participants.

Audio Visuals

- Computers, smart phones, tablets, laptops
- Whiteboard or equivalent and markers

Special Space requirements

- Work area for small groups

Suggested Facilitator Preparation

- See Overview preparation

The Activity can be presented as:

- Have the small groups complete Activity 1 using the MyEnvironment and TRI websites. Be aware that some participants may be very excited by the technology while others may be intimidated.

Activity 2

Minimum Content Requirement

- Activity 2 worksheet
- Report back

Teaching Method

- Small group activity

Reference materials

- Website

Questions you may be asked

1. Does outdoor air quality affect indoor air quality?

Yes. Open windows will allow outdoor pollutants inside.

2. Which of the listed indoor pollutants are particles?

Explain that dust, mold, pet dander, secondhand smoke, and pesticides are or contain particles.

There are a lot of hazards in the IAQ house that you do not list. Why?

The IAQ house lists the most common hazards that are associated with health effects. More information can be found here: <https://www.epa.gov/indoor-air-quality-iaq/introduction-indoor-air-quality>

Audio Visuals

- Computers, smart phones, tablets, laptops

Special Space requirements

- Work area for small groups

Suggested Facilitator Preparation

- See Overview preparation

The Activity can be presented as:

Using the IAQ House website, have participants identify the main exposures in each room of the house. Answers are provided in blue below.

Living room –	Carbon Monoxide Secondhand smoke	Dust Pesticides	Mold Radon	Pet Dander VOCs
Bathroom -	Carbon Monoxide Secondhand smoke	Dust Pesticides	Mold Radon	Pet Dander VOCs
Bedroom -	Carbon Monoxide Secondhand smoke	Dust Pesticides	Mold Radon	Pet Dander VOCs
Kitchen –	Carbon Monoxide Secondhand smoke	Dust Pesticides	Mold Radon	Pet Dander VOCs
Basement –	Carbon Monoxide Secondhand smoke	Dust Pesticides	Mold Radon	Pet Dander VOCs

Resource 4

As a group, ask participants to identify and discuss “What are some of the many potential risks associated with particle pollution?” (especially small particles)

Activity 3

Minimum Content Requirement

- Activity 3 worksheet
- Report back

Teaching Method

- Small group activity
- Discussion

Reference materials

- Worksheet

Questions you may be asked

1. What is the proof that air pollution causes heart attacks?

Medical research studies have linked air pollution and heart attacks. See <https://www.epa.gov/sciencematters/linking-air-pollution-and-heart-disease>

https://www.epa.gov/sites/default/files/2016-01/documents/air_pollution_and_heart_disease_fact_sheet.pdf

2. I work outside, so cannot limit exposure by staying inside. What can I do?

Reduce physical exertion during days when the AQI is high. This can be accomplished by rotating workers, delaying work, reducing physical workload, using additional mechanical aids, taking more rest breaks, and having additional manpower. If you have existing heart or respiratory health concerns you should seek advice from your doctor.

Audio Visuals

- none

Special Space requirements

- Work area for small groups

Suggested Facilitator Preparation

- See Overview preparation

The Activity can be presented as:

Refer to the concepts at the top of the page. Have the participants work in groups to fill in the blanks related to the figure. For this exercise, participants can stay in same group or can be divided into new groups.

Note differences to participants between small particles (less than 10 μm) and larger particles for health concerns to respiratory system. Ask participants why each component is important.

“How do you reduce outdoor exposures?”

Ask participants to identify at least 3 mechanisms to reduce outdoor exposures (reduce amount of physical exertion outdoors or substitute another activity that involves less exertion, spend time outdoors on days when the AQI is better, spend time outdoors away from busy roads, which have higher levels of particulate exposure)

“How do you reduce indoor exposures?”

Mention to participants that particulate levels can also be high indoors. Ask them to identify at least 3 ways they can reduce their indoor air exposures. Some examples are:

- Using filters and room air cleaners
- Not smoking inside
- Reducing your use of other as candles, wood-burning stoves, and fireplaces which increase particle exposure
- Use vent over stove when cooking
- Cook at lower temperatures
- Minimize frying

Activity 4

Minimum Content Requirement

- Activity 4 chart
- Report back

Teaching Method

- Small group activity

Reference materials

- Websites provided

Questions you may be asked

Some groups may need assistance in finding the information they need on the internet. The facilitator should be familiar enough with the websites to direct the groups to potential sources.

Audio Visuals

- Computers, smart phones, tablets, laptops
- Whiteboard or equivalent and markers

Special Space requirements

- Work area for small groups

Suggested Facilitator Preparation

- See Overview preparation

The Activity can be presented as:

- Working in small groups, ask participants to complete Activity 4 and be prepared to report back to the larger group when finished.

Activity 5

Minimum Content Requirement

- Activity 5 chart
- Report back

Teaching Method

- Individual exercise

Reference materials

- Websites provided

Questions you may be asked

1. Do I have to make a plan?

Some participants may not want to make a detailed plan. Encourage all to make a plan so they have a concrete “take-away”.

2. Do I have to report back to the large group?

Some participants may not want to report back. That is fine.

Audio Visuals

- Computers, smart phones, tablets, laptops
- Whiteboard or equivalent and markers

Special space requirements

- Individual work areas

Suggested Facilitator Preparation

- See Overview preparation

The Activity can be presented as:

For this activity, participants will work as individuals. Some individuals may have relied on their group for prior activities and may need help using their device or the internet.

There is no one, model plan - it depends on the participants and the goal. The exercise is to empower participants to document their process. Everyone should think outside the box, including for the format of the final Worksheet.

Closing

Answer any remaining questions. Point out the additional website resources provided in the Participant Guide. Thank participants for attending.