

Protect Your Child From Environmental Health Risks

Teaching Guide

Introduction:

Children are more at risk from environmental health threats than adults because of several factors:

- Infants and children are still growing inside. Their organs are still young and may be harmed by chemicals and other dangers. Their immune systems are still developing.
- Children take in more air, food, and liquids per pound than adults. That means they can take in more harmful substances than adults.
- Children, especially young children, crawl, play on the floor, put their hands in their mouths and spend a lot of time outdoors. Just being children exposes them to environmental hazards.

There are a variety of environmental factors that can impact children's health. This lesson focuses on ten specific topics, providing basic information about how the pollutant can impact health and how parents and caregivers can protect children. Following is an introduction to each of these ten topics.

Lead Poisoning

The effects of lead poisoning from lead paint, pipes, plumbing fittings and fixtures, and other sources can cause IQ deficiencies, learning disabilities, impaired hearing, reduced attention spans, hyperactivity, decreased growth and even brain damage in children, especially children under 6. There are many things that can be done to protect children from lead poisoning. Damage can be limited if the problem is found early.

Pesticides

Pesticides can poison children and may even cause cancer. Proper use and storage of these substances can greatly reduce the risks to children. Using chemical pesticides as a last resort can help you avoid possible exposure to your children.

Toxic Household Chemicals

Like pesticides, many of the cleaning products and chemicals found in our homes can poison children. To limit the risk to children, always store these products out of their reach. In many cases, non-toxic products can be used in place of toxic household chemicals.

Polluted Water and Contaminated Fish

Children drink more water for their size than adults, and their immune systems are not yet fully developed. Given these factors, it is extremely important to insure that your water supply is safe. If a family uses a private water system, like a well, the water should be tested at least once per year. Steps should be taken to prevent contamination of the water supply. For families who receive water from a public system, it is important to understand where that water comes from and how it is treated. Public water systems must prepare and distribute annual water quality reports each year. Parents should take the time to read the report, and call to ask questions. Exposure to methyl mercury from eating contaminated fish can also damage a child's developing nervous system. Parents should always be aware of and follow fish consumption advisories. Swim advisories and beach closings are also issued to protect human health, and should always be followed.

Carbon Monoxide

Children are at increased risk from carbon monoxide because of their higher metabolisms. Proper installation and maintenance of combustion appliances can help eliminate this danger. A carbon monoxide detector can help protect families from high levels of carbon monoxide in their homes by providing a warning.

Asbestos Fibers

Asbestos can cause cancer. Once the fibers are in children's lungs there is no way to remove them. Asbestos that is in good condition is not dangerous. If it is disturbed or is deteriorating, the effects can be deadly. Asbestos was once widely used by the construction industry as insulation, and in a variety of consumer products. It was also widely used in school buildings until the 1970's.

Asthma and Air Pollution

Asthma has become the most common chronic childhood disease in the United States. Precautions taken in the home can reduce air pollution, thereby lowering the risks of asthma attacks in children. Outdoor air pollution can also trigger asthma attacks, so parents need to know how to limit their children's exposure to outdoor air pollution.

Radon Gas

Radon gas enters the home through cracks in the foundation. It is the second leading cause of lung cancer. Different parts of the country have different levels of radon. Data from testing laboratories indicate that approximately 17 to 25% of Kentucky homes tested had radon levels above what is considered healthy. Testing the home is easy and inexpensive.

Tobacco Smoke

Tobacco smoke can cause chronic respiratory conditions and has been linked to sudden infant death syndrome (SIDS). It is important for parents to know the dangers to children, and to protect children from environmental tobacco smoke.

Sun – Getting Too Much

Overexposure to the sun as a child increases the risk of skin cancer in later life and can impair the immune system as well as damage the eyes. There are simple guidelines parents need to follow to keep children safe.

Lesson Purpose and Objectives

Purpose: This lesson is designed to communicate information to parents and caregivers about environmental health risks for children, and how children might be exposed. The lesson materials also share tips about what can be done to reduce or eliminate the risks.

Objectives: This lesson guide contains a lot of information about environmental health risks to children. Because of the large number and variety of objectives, it would be difficult to teach them all in one session. Therefore, the objectives are broken into two groups and labeled Session One and Session Two. You are encouraged to select a program based on the audience you are serving. You may still wish to select and focus on *only two or three* of the objectives in either session:

Session One:

- Realize that environmental hazards affect children in different ways than how they affect adults, and that children's behavior often puts them at greater risk to environmental hazards.
- Understand that lead is dangerous to your children even though you cannot see, taste, or smell it.
- Recognize the importance of having your home, water, and children tested for lead.
- Become knowledgeable about what you can do in your home to reduce the risks of lead poisoning from lead paint, pipes, fittings and fixtures.
- Realize that safe use and storage of pesticides and toxic household chemicals is imperative to your child's health.
- Understand the importance of having the phone number of the Poison Control Center posted on your telephone.
- Learn about pest prevention techniques and safe chemicals that can be tried before resorting to pesticides and hazardous chemicals.
- Comprehend the importance of washing and peeling fruits and vegetables before feeding them to children and limiting the use of pesticides on your own garden.
- Become familiar with your drinking water source, whether it is private or public.
 - If you have a private water supply, learn about the proper way to care for it including when to have it tested.
 - If you use a public water source, study your local water system and learn more about the quality of your drinking water.
- Become knowledgeable about state-issued fish advisories, and lakes or rivers that are closed to swimming due to contaminants.
- Other: (Please specify below.)

Session Two:

- Understand the importance of properly installing and venting combustion appliances to minimize indoor air pollution.
- Become knowledgeable about how you can lower the risk from carbon monoxide to your child.
- Learn whether your home or your child's school contains asbestos.
- Recognize how dangerous it is for your child to be around deteriorating or disturbed asbestos.
- Learn the value of keeping your child indoors on days with high ozone levels or high pollen counts.
- Understand how you can reduce triggers of asthma attacks for your child by keeping your home clean, pets outdoors, and observing a no smoking policy.
- Study the risk of radon contamination in your area and the value of having your home tested if you are in a high risk area.
- Become knowledgeable about the dangers of tobacco smoke and the importance of banning smoking in your home and car.
- Understand the importance of protecting children from severe sunburns and the best ways to do so.
- Other: (Please specify below.)

Suggested Resources & Materials

The following items are available for your use in teaching this lesson. Select and use resources according to your program focus and needs. County agents should request these materials in advance.

► Publications & Fact Sheets

Numbered-Series Extension Publications: (available through order entry)

- *Protect Your Child From Environmental Health Risks*, IP-72
[This publication is the primary handout for use with this lesson. Others listed are supplemental and provide detailed information about specific topics.]
- *Lead in and around the Home*, IP-70
- *Indoor Air Quality: Reducing Health Risks and Improving the Air you Breathe*, IP-59
- *Managing Hazardous Household Products*, IP-64
- *Hazardous Household Products: Alternatives that are Relatively Free of Toxic Effects*, FCS4-904
- *Heating and Cooling Systems: Saving Energy and Staying Safe*, IP-66
- *Management of Wells for Drinking Water*, IP-68

Camera-ready Family and Consumer Sciences Fact Sheets:

(available via the FCS web site at <www.ca.uky.edu/fcs>)

- *Home Indoor Air Assessment*, HF-LRA-160
- *Common Indoor Air Pollutants: Sources and Health Impacts*, HF-LRA-161
- *Indoor Air Pollutants: Detection and Control Measures*, HF-LRA-162
- *Testing for Indoor Air Pollutants*, HF-LRA-172

► Publications & Fact Sheets (cont'd.)

Camera-ready Environmental and Natural Resource Issues Fact Sheets:

(available via the FCS web site at www.ca.uky.edu/fcs)

- *Do's and Don'ts of Taking Care of a Well*, ENRI-200
- *Disinfecting Your Well*, ENRI-201
- *What You Need to Know About Testing Your Well Water*, ENRI-202
- *What You Need for a Cistern Water System*, ENRI-203
- *Cleaning and Disinfecting a Cistern*, ENRI-205
- *Can My Water Make Me Sick?* ENRI-207
- *Bacteria*, ENRI-208
- *Hepatitis A*, ENRI-209
- *A Boil Water Advisory or a Boil Water Notice*, ENRI-210

Environmental Protection Agency publications –

The Environmental Protection Agency (EPA) has a variety of publications available related to children's environmental health and the ten specific topics covered in this lesson. Selected titles are listed below, along with information about how to access these materials.

Lead publications can be requested through the National Lead Information Center at (800) 424-5323 or accessed via the world wide web at: <http://www.epa.gov/lead>.

Selected titles available include:

- *Lead in Your Home: A Parent's Reference Guide*
- *Lead Poisoning and Your Children*
- *Testing Your Home for Lead in Paint, Dust and Soil*
- *Fight Lead Poisoning with a Healthy Diet*

Many EPA publications are available through the National Service Center for Environmental Publications. Orders may be placed by calling (800) 490-9198 or online at <http://www.epa.gov/ncepihom/ordering.htm>. Selected titles related to children's environmental health topics include:

- *Citizen's Guide to Pest Control and Pesticide Safety*
- *Clear Your Home of Asthma Triggers*
- *Drinking Water and Health: What You Need to Know!*
- *Pesticides and Food: What You and Your Family Need to Know*
- *The Sun, UV, and You: A Guide to Sunwise Behavior*

► Teaching Kit

A teaching kit containing samples of many of the items and materials mentioned in the publication and suggested teaching techniques has been assembled and is available for loan to county Extension agents. The kit includes items like carbon monoxide detectors, radon test kits, sunscreen, full brim hats, cabinet locks and latches, pest baits and traps, and many other items. To borrow this kit, contact Kim Henken, Extension Associate for Environmental Issues in Family and Consumer Sciences (phone 859-257-7775 or email khenken@uky.edu).

► Videos (Available for loan through the Agriculture Communications video library)

- *Environmental Safety: What Every Parent Should Know* (VEI-1337)
- *Radon Free: What Every Homeowner Should Know About* (VEI-1315)
- *Household Pests and Their Control* (VET-0648)
- *Sesame Street Lead Away* (VGN-1280) (targeted to young children)
- *The Dangers of Lead Based Paint* (VHD-0918)
- *Not Under My Roof: Protecting Your Baby from Toxins at Home* (VEI-1462)
- *Health at Home: Controlling Asthma* (VEI-1427)
- *Poisoning Our Children: The Perils of Secondhand Smoke* (VEI-1462)
- *Sun Safety: A Growing Health Concern* (VEI-1462)

► Exhibits

- Display graphics that correspond with the “*Protect Your Child From Environmental Health Risks*” publication are available for loan. The graphics are designed to fit a “small” display board. The four panels address sun safety, lead poisoning, safe drinking water and pesticides / toxic household chemicals. Graphics are housed in Lexington and Princeton. Contact Kim Henken (phone 859-257-7775 or email khenken@uky.edu) in Lexington and Kay Cotton (phone 270-365-7541 or email kcotton@uky.edu) to borrow this exhibit.
- Additional displays are available that correspond with one or more of the topics covered in this publication and teaching guide. Titles and contacts are listed below.
 - *Can My Water Make Me Sick?* Contact Kim Henken (phone 859-257-7775 or email khenken@uky.edu)
 - *Using a Cistern Water System* - Contact Kim Henken (phone 859-257-7775 or email khenken@uky.edu)
 - *Using a Drinking Water Well* - Contact Kim Henken (phone 859-257-7775 or email khenken@uky.edu)
 - *Dealing with Household Hazardous Products* - Contact Kim Henken (phone 859-257-7775 or email khenken@uky.edu)
 - *Indoor Air Quality* - Contact Linda Reece Adler (phone 859-257-7775 or email lreece@uky.edu)

► Web Sites

A variety of web sites provide reference materials, online tools, and handout materials that could be utilized in addressing children’s environmental health topics.

- Environmental Protection Agency, Office of Children’s Health <www.epa.gov/children>
- National Safety Council, Environmental Health Center - <www.nsc.org/ehc.htm>
- Children’s Health Environmental Coalition - <www.chechnet.org>
(Includes a virtual house you can tour room-by-room.)
- Help Yourself to a Healthy Home - <www1.uwex.edu/healthyhome/>
(Interactive site that provides personalized “action checklists” for those who answer the self-assessment questions.)
- Children’s Environmental Health Network - <www.cehn.org>
- Kentucky Department for Public Health, Environmental Health Programs - <publichealth.state.ky.us/index-environmental_programs.htm>
- Kentucky Natural Resources and Environmental Protection Cabinet - <www.nr.state.ky.us>

- ▶ Other Resources and Materials: (Please specify.)

Suggested Teaching Techniques and Activities

Select only those activities that will help you teach your lesson. Limit selection according to your program focus, audience, and length of lesson.

Session One:

Introduction

- Begin by reviewing the information and transparencies that explain why children are at greater risk. Then, focus on each pollutant individually by reviewing the transparencies for those covered in this session. Use the teaching tips outlined below and on the following pages for each specific topic to provide a more detailed focus on the topics you want to emphasize in this session.
- Show either the first segment of the video *Not Under My Roof* or the entire video. The first segment (approximately 4 minutes) provides information about why infants and young children are at greater risk to pollutants. The remainder of the program provides general information about many of the individual pollutants addressed in this programs (total length approximately 17 minutes).
- For a shorter video introduction, use the first segment of *Environmental Safety: What Every Parent Should Know*. This one minute segment provides a good, brief introduction to environmental health and how children can be more easily affected.

Lead Poisoning

- Discuss the effects of lead poisoning, and the potential sources in and around the home. Emphasize the steps you can take to prevent lead poisoning.
- Play segment two of the *Environmental Safety: What Every Parent Should Know* video (approximately 5 minutes), which provides basic information about lead poisoning and prevention.
- Show the video *The Dangers of Lead Based Paint*. Ask the audience how many live in homes built before 1980. Discuss the dangers associated with lead-based paint.
- Show the video *Sesame Street Lead Away* (approximately 15 minutes). Talk to the audience about ways to prevent lead poisoning. Discuss the fact that lead is dangerous to your children even though you cannot see, taste or smell it. Make the video available for parents to borrow and watch with their child. Focus on the main points in the video that are targeted to young children.

Lead (cont'd.)

- Invite someone from the local Health Department or Kentucky Department for Public Health Lead Poisoning Prevention Program to come and talk about the dangers of lead. Talk about how to test your water for lead and how to test children's blood lead levels. Discuss what measures can be taken to reduce the risks of lead poisoning.

Pesticides

- Review the ways pesticides may be used in and around the home. Discuss alternatives to chemical pesticides like traps, baits and pulling weeds. Introduce the concept of integrated pest management (IPM).
- Emphasize the need for proper storage of pesticides, and focus attention on keeping labels intact. Share examples of common pesticides, and spend time reviewing the information on the labels.
- Talk about the importance of thoroughly washing fresh fruits and vegetables.
- Play segment five of the *Environmental Safety: What Every Parent Should Know* video (approximately 4 minutes), which addresses both pesticides and toxic household chemicals. The segment provides information about less toxic or non-toxic alternatives, along with tips for proper use and storage.
- To provide an in depth focus on home pest control, show the video *Household Pests and Their Control* (approximately 31 minutes). The video provides a good overview of integrated pest management (IPM), and then details specific tips for controlling several common household pests.

Toxic Household Chemicals

- Invite someone from the Poison Control Center to come to the meeting and speak to the group about what to do if your child is exposed to a hazardous household product. Ask the representative to bring handout materials with emergency information and the Poison Control Center telephone number. If a representative is not available for your program, order phone stickers and/or brochures through their education coordinator (phone 502-629-5428).
- Talk to the audience about alternatives to hazardous household products. Bring examples of alternatives and show them to the audience. A list can be found in *Hazardous Household Products: Alternatives that are Relatively Free of Toxic Effects*, FCS4-904.
- Assemble a display of hazardous household products with non-hazardous "look-alikes". Discuss the importance of storing all hazardous products out of the reach of children.

Polluted Water and Contaminated Fish

- Ask someone from the local Health Department to talk about well water testing and the proper procedure to use when obtaining a water sample. Stress the importance of having wells tested every spring and what simple measures can be taken to improve the quality of the water. Make copies of the Extension fact sheets related to wells and cisterns available to those who are interested.

Polluted Water and Contaminated Fish (cont'd.)

- Ask someone from the local water system to come and speak to the group. Have them talk about their most recent water quality report. Encourage the audience to ask questions.
- Invite a representative from Kentucky Division of Water, Department of Fish and Wildlife or the local health department to talk about fish consumption advisories. Ask them to talk about guidelines for special populations, which include pregnant and nursing mothers, and infants and children.
- Review the importance of following swim advisories. Ask the audience if they are aware of any local waters that have been closed for swimming and recreation.

Session Two:

Introduction

- Briefly review the main topics discussed in session one. If you choose not to cover the topics from session one, review the opening transparencies focused on why children may be at greater risk from environmental hazards and exposures. Then, review the information about each specific topic covered in session two as presented in the transparencies. Use the specific tips outlined below and on the following pages for each topic to provide greater detail about the topics you would like to emphasize in your program.
- As an introduction to the air pollution topics that will be covered, show segment 3 of *Environmental Safety: What Every Parent Should Know*. This 4 ½ minute segment includes information about air pollution triggers for asthma, radon, asbestos and carbon monoxide.

Asthma and Air Pollution

- Invite a local health professional to talk about asthma and its affects on children. Include a discussion of environmental triggers of asthma and strategies for managing asthma.
- Show the video *Controlling Asthma in the Home*. Talk about the importance of keeping the house clean, pets outdoors and observing a no smoking policy, especially if you have children who suffer from asthma.

Carbon Monoxide Gas

- Bring in a carbon monoxide alarm and talk about the importance of having one near children's sleeping areas. Stress the importance of not using unvented gas or kerosene heaters in rooms where children sleep and of not using gas ovens or burners for heat.

Asbestos

- Invite someone from the Health Department or Kentucky Division of Air Quality to talk to the group about asbestos and what you should do about it if you discover it's in your home or your child's school. Emphasize to the parents that once asbestos fibers are imbedded in your child's lungs, there is nothing that can be done to remove them.

Radon

- Discuss the importance of testing your home for radon. Demonstrate to the audience how to use a home radon test kit. Give interested participants a radon test kit or a request coupon (master copy provided with this teaching guide).

Tobacco Smoke

- Invite someone from the American Cancer Society or the American Lung Association to speak to the parents about the dangers of smoking and the effects on children. Encourage parents to set a good example for their children and quit smoking.
- Play the video *Poisoning Our Children: The Perils of Secondhand Smoke*. Follow the video with a discussion of how secondhand smoke or environmental tobacco smoke can impact children's health.
- Supply copies of the "Smoke Free Home Pledge" to participants. Review the reasons why it is important to maintain a smoke free home. Challenge your participants to make a pledge to keep their homes smoke free. Information about the smoke free home campaign is available via the Environmental Protection Agency web site at <www.epa.gov/smokefree>.

Sun – Getting Too Much

- Have a group discussion concerning the different ways parents protect their children from too much sun. Take along a broad brimmed hat, sunglasses with large lenses, sunscreen and light-colored clothing with SPF ratings (if available). Talk about the importance of using these items.
- To emphasize sun safety, show the video *Sun Safety: A Growing Health Concern* (approximately 11 minutes). Emphasize the main points shared in the video.
- For a shorter video presentation on sun safety, show segment four of the video *Environmental Safety: What Every Parent Should Know* (approximately 4 minutes). Following the video, discuss the basic tips for protecting children from the sun.

Suggested Evaluation Techniques

Select the technique(s) best suited to the information you would like to obtain from your audience. Immediate evaluation will provide reaction to the presenter and program materials. Delayed evaluation will give a better indication of changed behavior and attitudes. The "Skill Builders" is an important tool to help audience members apply what they have learned.

- At the close of the program, ask each participant to name *one* thing they learned from the lesson. Record their responses.
- Hand out a copy of the *Help Us Serve You Better* evaluation form. Ask participants to complete the form and leave it in a specific place as they leave.

Suggested Evaluation Techniques (cont'd.)

- Return to the group several weeks later and ask them to fill out the Follow-up Feedback Form and leave it in a specific place as they leave. If you will not have an opportunity to meet with the group again, the follow-up evaluation form can be used in several ways. You may choose to mail the form to participants, along with a short cover letter and a return envelope. You may also decide to contact a random sampling of participants via phone to collect the data verbally.
- This lesson can be used in conjunction with the Keys to Great Parenting series. The Skill Builders from this lesson can be incorporated into the log sheet from the Keys program. Pass out the half-page Skill Builders form and help the participants to develop their own Skill Builders. Suggest to them that they review what they have learned and pick out an environmental health risk they would like to address or a parenting skill that they would like to improve. Have them choose one important change they want to make in the next few weeks and write down their action plan for doing it. The change should be small so it will be easier to accomplish. Then, go around the room and let each person share his or her action plan. Assist participants in using the Skill Builder Log Sheets to evaluate their growth in parenting skills. Since they serve as their children's teacher, encourage them to continue to work on the skills after the session is over.
- If this program is not done in conjunction with a Keys to Great Parenting series, the Skill Builders form can still be utilized to help participants develop a plan of action. Simply follow the instructions outlined above, omitting the section related to the Skill Builders Log Sheet. As the participants share the actions they plan to take, make a master list for your records. Then, check back with members of the group at a later date to see if they have carried out their plan.
- Other: (Please specify below.)

Reporting Your Impacts

Extension agents and paraprofessionals can report impacts from children's environmental health programs through the current reporting system as follows:

- Time and contacts should be reported using PAC CODE 440 – Individuals knowledge and use of safety practices.
- When writing impact statements about programs related to children's environmental health, please be sure to use at least one of the following key phrases:
 - children's environmental health
 - environmental health risks
 - protect your child

Reporting Your Impacts (cont'd.)

- For FY03, two new priority indicators will be added under Goal 4 – Encourage the adoption of healthy lifestyles through a focus on proper nutrition, disease and injury reduction, and comprehensive health maintenance. These indicators are:
 - Number of individuals who experience a change in knowledge, opinions, skills, or aspirations regarding environmental risks that can impact children's health.
 - Number of individuals who adopt one or more recommended practices to protect children from environmental health risks.

Please collect data throughout the year to include on the county priority indicator report at the end of FY03.

This teaching guide was written by Denise Hoffman and Kimberly Henken, Extension Associates for Environmental Issues in Family and Consumer Sciences.

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