Purpose – Create an awareness of environmental issues and their affects while educating 4-H members on the importance of being proactive on environmental issues.

Background Information:
Environmental problems affect each and every one of us each day. As 4-H members, we are challenged to make the best better for country and world and this includes being an environmental steward, “Someone who manages the natural world, especially when it is regarded as being at risk from the harmful influences of human activities.”

Environmental issues are not just important to saving our planet, but important to our life - the air we breathe, the water we drink and the food we eat. Each of these affects our health and well-being.

Although there are many important issues to address, only four are touched upon in Students Tackling Environmental Problems (S.T.E. P.). Indoor air quality, mercury poisoning, water conservation and quality and lead poisoning.

The EPA “Live, Learn, Play!” booklet (EPA #100-K-04-001) should be read by the presenter prior to doing any teaching. The information is the foundation of the workshop which will be supplemented by other sources noted with each topic and included in folders on the CD.

Review the 4H.VOL 118 -Experiential Learning in preparation for conducting the workshop. The most important part of the experience is the use of the “reflect” and “apply” questions. This is where the audience begins to understand the topics relevance and life skills application to their life, family and community. Do NOT rush through this portion of the lesson; draw the answers out of the participants with additional questions. The key to this process is that the group comes up with the answers rather than being provided with the answer.

Train the Trainer - If this workshop is being done to train volunteers (adult and/or youth) to lead the activities at the club level select no more than two activities to do as an example. Review the others orally. Take time to talk about experiential learning and life skills as part of the lesson.

Education - If asked to present the “subject matter,” teach youth or create awareness on a subject then present one lesson as outlined.

A CD is Included in your EPA booklet. There are environmental rap songs which can be played before or after the workshop.

Preparation
- Two-three weeks prior to traveling workshop order copies of “Live, Learn, Play!” to be distributed at
Train the Train session. These can be ordered online at [http://www.epa.gov/ncepihom/ordering.html](http://www.epa.gov/ncepihom/ordering.html) with the publication number EPA 100-K-04-001.

**S.T.E.P. CD Content**

**EPA**
- Live, Learn, Play – PDF file
- Live, Learn, Play Music
- EPA Youth Publication List and Web Site

**Instructional Materials and OCES Resources**
- STEP Teaching Outline
- STEP PowerPoint Supplemental
- 4H.VOL.118 - Experiential Learning
- STEP Flash Cards-Posters – PowerPoint Slides
- Life Skills - Definitions
- **Go Green**
  - Go Green Jeopardy - PowerPoint
  - Go Green Newsletter – Publisher Document

**Section 1: Indoor Air Quality**
- Secondhand Smoke - ACS
- Indoor Air Hazards Every Homeowner Should Know About... – Federal Citizens Information Center
- Second Hand Smoke Activity Sheet (6-12 year olds)
- Breath Easy: 5 ways to control indoor air quality – Web MD
- Second Hand Smoke Toolkit – Wisconsin Department of Public Instruction
- The Inside Story to Indoor Air Quality - EPA

**Section 2: Mercury**
- Compact Florescent Light Bulb Activity
- Basic Information about Mercury – EPA
- Lead and Mercury: Comparing two Environmental Evils – National Institute of Environmental Health Science
- Elementary school activities
- Middle school activities
- High school activities

**Section 3: Water Quality**
- Water on Tap: What you need to know. – EPA
- Water Health Issues: Bottled Water Basics – EPA

**Section 4: Lead Poisoning**
- Arsenic and Lead Scavenger Hunt - National Institute of Environmental Health Science (grades 9-12)
- Using Chemistry to Treat Lead Poisoning - National Institute of Environmental Health Science (grades 9-12)
- Getting the Lead Out - National Institute of Environmental Health Science (grades 9-12)
- Lead Poisoning Home Check List: EPA
- Chip and Dusty Puppet Skit – EPA
- Buster Puppet – EPA
- Chip Puppet – EPA
- Dusty Puppet – EPA
- What You Need to Know About Lead Poisoning – EPA
- Lead and Mercury: Comparing two Environmental Evils – National Institute of Environmental Health Science
- Lead: How it Effects your Body and Health – Johns Hopkins
- Lead and Your Health - National Institute of Environmental Health Science
- Toxin Tic-Tac-Toe - National Institute of Environmental Health Science
Training the Trainer

Train the Trainer is to be lead for adult and teen volunteers who will take the STEP packet of activities back to the local club for teaching - pages 1-2 and 6-15.

Slides for sections 1-4 and “Leave a Smaller Footprint” are only supplements to the activities in the packet of lesson plans. Teaching from the slides only, will not provide a well rounded learning experience.

Each lesson is designed to take 45-60 minutes when taught using the 4-H “Experiential Learning Model.”

Prepare flash cards or signs with each of the STEP life skills and its definition. Post definitions where students can see them.

Purpose of STEP: Create an awareness of environmental issues and their affects while educating 4-H members on the importance of being proactive on environmental issues. This means our 4-H membership is encouraged to be educators and changing agents in their homes and communities. As individuals, 4-H members can lead by example and inspire friends, families and peers in making sound environmental decisions.

What it is not – This is not a curriculum which will tell individuals what to think. But it will encourage youth to think and make positive decisions.

After this “Train the Trainers” session concludes there are three goals for the newly trained presenters of STEP activities.

Create Awareness – Encourage others to be aware of the current issues and observant of their surroundings.

Education – As 4-H members we must first educate ourselves and practice new life skills before we begin asking others to change their behavior and practices through the education of others.

However, awareness and education do not bring results.

Change in Behavior - Only true results can be noted when there is a “change in behavior” or practices.

Although we face many environmental issues today, the STEP program focuses on only four very broad environmental issues. This training’s purpose is to provide teen and adult volunteers a overview of the program – lesson plans, resources, review the use of the experiential learning process and how to connect STEP activities to Life Skills development.

Following this “train the trainer” session, our goal is for each of you to lead youth in STEP activities.

There are supplemental slides for each section. The use of these slides is not necessary to successfully teach or lead activities. The ACTIVITIES are the key to the learning experience.

If the volunteer chooses to use the slides please do not read each slide. Use them as an outline...explain (or elaborate on) each point contained on the slide.

Section 1: Air - slides 12-17

Section 2: Mercury - slides 19-25

Section 3: Water - slides 27-34

Section 4: Lead - slides 36-41

Slides 41-44 are general “making a smaller footprint” slides which can be blended with subject matter taught in each of the four focus areas.

Do not attempt to teach all four lessons unless you have three to four hours of programming time. Each lesson will take 45-60 minutes to adequately cover the subject matter, conduct the activity and to reflect and apply the information.

Experiential Learning

Experiential Learning has three primary steps – DO, REFLECT and APPLY. The two most important steps are the REFLECT and APPLY. These two steps are further divided Sharing, Processing, Generalizing and Applying.

DO Participants experience the activity - perform or do it.

REFLECT Sharing - Participants share the experience by describing what happened to them.
Reflect
Processing - Participants process the experience to determine what was most important and identify common themes and experiences.

Apply
Generalizing - Participants generalize from the experience and relate it to their daily lives.

Apply
Applying - Participants apply what they learned to a new situation.

When this model is used, youth both experience and process the activity. They learn from thoughts and ideas about the experience. Each step contributes to their learning and application of information.

Providing an experience alone does not create experiential learning. Experiences lead to learning if the participant understands what happened, sees patterns of observations, generalizes from those observations and understands how to use the generalization again in a new situation. 4-H curriculum and materials for both youth and volunteers includes experiential based activities.

Advantages of using the experiential learning process in group settings include:

1. The helper quickly assesses the youth’s knowledge of the subject.
2. The helper builds on the experience or knowledge.

3. The youths learn from each other by sharing knowledge and skills.
4. The helper is a coach rather than an up front teacher.
5. The youth relate the experience to their own lives and experiences.
6. Helpers may use a variety of methods to involve the youth in the experience and processing of it.
7. Youth with many different learning styles can be successful.
8. Discussions move from the concrete to the abstract and analytical.
9. Stimulates youth to learn through discovery and draw meaning from the experience.
11. Youth work together, share information, provide explanations and evaluate themselves and others.
12. Youth take responsibility for one’s own learning.

Life Skills
One of the primary goals of the 4-H program is to help youth develop life skills that they can use everyday. Life skills are tools youth (and adults) use to cope with daily circumstances, make important decisions and enhance the quality of their daily lives. Life skills help youth become competent, capable and contributing individuals. These skills can be seen in the Targeting Life Skills Model (Hendricks 1996).

A well-designed activity provides opportunities to practice several of the life skills shown on the clover. However, in order to help youth process what they have practiced, at least one life skill should be targeted and emphasized.

There is a difference in a skill and a life skill. A “skill” is a learned ability to do something. “Life skills” are the ways we apply the information/skill learned to real life situations.

The Targeting Life Skills Model developed by Iowa State University Extension (1996) targets life skills in a bull’s-eye — aiming 4-H youth toward life skills development using the four H’s of the Clover. A well-balanced 4-H experience for the individual, club, activity or event will focus equally on all four quadrants of the model.

Each of the STEP focuses contains one skill from each quadrant and integrates it into the subject matter content. The key to “life skills” development is the individual having an opportunity to talk about (reflect) and apply an experience to other aspects of their life. Example: How is following directions for a recipe and measuring ingredients applicable to other experiences in life?

As a “volunteer” you can lead/teach the lessons.

Encourage those taught to develop service projects which will establish recycling and conservation programs or practices.
Encourage 4-H members to use the knowledge to develop public speaking skills by developing talks which can be presented to local civic groups.

Work with youth in local clubs to develop projects which can be maintained over a long period of time.

We have heard, “less is more,” what a great thought for STEP. As 4-H members, volunteers and adults we can all use less water, energy, chemicals and disposables. By using less we in turn protect....(as noted on slide 9). What “more” could we do!

Little changes make a BIG difference...this is the chief approach behind STEP. The notion is that “all appliances don’t have to be replaced in order to make an impact.” There are thousands of “little things” each individual, family or club can do to improve their home, school, community, state, country and planet. STEP focuses on awareness and the little changes which will produce major impact.
Section 1: Indoor Air Quality

Objective: Create awareness about the effects of secondhand smoke.

Sub Topics:
- Indoor Air Pollution
- Secondhand Smoke
- Life Skills development

Materials needed: Secondhand Smoke Children’s Health Week worksheets and pencils.

CD Resources - Section 1: Indoor Air Quality
- Indoor Air Hazards Every Homeowner Should Know About
- Second Hand Smoke Activity Sheet (6-12 year olds)
- Breath Easy: 5 ways to control indoor air quality
- Clear the Air a Second Hand Smoke Toolkit
- The Inside Story to Indoor Air Quality
- Healthy Indoor Air for America's Homes. Indoor Air Hazards Every Homeowner Should Know About...
- Clear the Air: a secondhand smoke tool kit.
- Secondhand Smoke – American Cancer Society

Background Information:
Indoor air quality is a concern that affects everyone whether it is at home, work or school.

EPA reports that there are many sources of indoor air pollution in any home. These include combustion sources such as oil, gas, kerosene, coal, wood, and tobacco products; building materials and furnishings as diverse as deteriorated, pet dander, insects (dust mites and cockroaches), asbestos-containing insulation, wet or damp carpet, mold and mildew and cabinetry or furniture made of certain pressed wood products; products for household cleaning and maintenance, personal care, or hobbies; central heating and cooling systems and humidification devices; and outdoor sources such as radon, pesticides, and outdoor air pollution.

Pollutants are generated outdoors as well as indoors. Ground-level ozone (one of the main ingredients in smog) is created when pollution from cars and trucks and industrial sources reacts with sunlight on hot summer days. Airborne particles come from various sources, including fuel burning activities such as power plants, incinerators, trucks and buses, and wood stoves and fireplaces.

Pollutants, like radon, are of concern because exposure to high levels of the pollutant over long periods of time increases risk of serious, life threatening illnesses, such as lung cancer. Contaminants, such as carbon monoxide at very high levels, can cause death within minutes. Other pollutants cause both short and long term health problems.

Prolonged exposure to tobacco smoke causes lung cancer, and short term exposures can result in irritation and significant respiratory problems for some people, particularly young children.

Sources:
The Inside Story: A Guide to Indoor Air Quality
http://www.epa.gov/iaq/pubs/insidest.html#IAQHome
Indoor Air Quality - "An Office Building Occupant’s Guide to Indoor Air Quality"
http://www.epa.gov/iaq/pubs/occupgd.html and Staying Healthy Outdoors: Air Quality
http://www.epa.gov/region1/healthyhomes/airquality.html
**Do:** Select an activity appropriate for the age of your audience. Prepare flash cards/signs with each of the life skills definition. Post definitions where students can see them.

<table>
<thead>
<tr>
<th>Age</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12</td>
<td>Healthy Indoor Air for America’s Homes: Secondhand Smoke and Children’s Health Action Week</td>
</tr>
<tr>
<td></td>
<td>Source - <a href="http://www.csrees.usda.gov/nea/family/in_focus/housing_if_epa.html">www.csrees.usda.gov/nea/family/in_focus/housing_if_epa.html</a></td>
</tr>
<tr>
<td>13-18</td>
<td>Source: Clear the Air: a secondhand smoke tool kit.</td>
</tr>
<tr>
<td></td>
<td>o Secondhand Smoke Agree/Disagree Activity, page 7</td>
</tr>
<tr>
<td></td>
<td>o Testimony for Healthy Lungs, page 8-9</td>
</tr>
<tr>
<td></td>
<td>Indoor Air Pages 4 – 6 of Live, Learn and Play.</td>
</tr>
</tbody>
</table>

**Reflect:**
- What are some tips for improving indoor air quality?
- What did you learn about your own limits on secondhand smoking?
- What did your group decide during the Testimony for Healthy Lungs activity?

**Apply:**
- What similar experiences have you had with secondhand smoke?
- How would you use this information to deal with someone contributing to poor indoor air quality?

**Teaching Notes:**
Section 2: Mercury

Objective: Create an awareness of products containing mercury and the danger mercury poses.

Sub Topics:
- Mercury Poisoning
- CFL Light Bulb Handling and Disposal
- Life Skills development

Materials needed: Activity sheets and pencils

CD Resources:
- Basic Information about Mercury – EPA
- Lead and Mercury: Comparing two Environmental Evils – National Institute of Environmental Health Science

Background Information:
Mercury is a naturally occurring element found in air, water and soil. Mercury is an element in the earth's crust. Humans cannot create or destroy mercury. Pure mercury is a liquid metal, sometimes referred to as quicksilver that volatizes readily. It has traditionally been used to make products like thermometers, switches, and some light bulbs.

Mercury is found in many rocks including coal. When coal is burned, mercury is released into the environment. Coal-burning power plants are the largest human-caused source of mercury emissions to the air in the United States, accounting for over 40 percent of all domestic human-caused mercury emissions. Burning hazardous wastes, producing chlorine, breaking mercury products, and spilling mercury, as well as the improper treatment and disposal of products or wastes containing mercury, can also release it into the environment.

Mercury in the air eventually settles into water or onto land where it can be washed into water. Once deposited, certain microorganisms can change it into methylmercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish.

Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Research shows that most people's fish consumption does not cause a health concern. However, it has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn.

Birds and mammals that eat fish are more exposed to mercury than other animals in water ecosystems. Similarly, predators that eat fish-eating animals may be highly exposed. At high levels of exposure, methylmercury's harmful effects on these animals include death, reduced reproduction, slower growth and development, and abnormal behavior.

A fairly new source of mercury in our homes is CFL light bulbs. Because of the mercury contained in the bulb great care should be given to both the disposal and cleanup of broken light bulbs. For cleaning and safety tips see page 17 of Live, Learn, Play.

Source: Basic Information about Mercury
http://www.epa.gov/mercury/about.htm
Do: Select an activity appropriate for the age of your audience. Prepare flash cards or signs with each of the life skills and its definition. Post definitions where students can see them.

<table>
<thead>
<tr>
<th>Age</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>6-11</td>
<td><a href="http://www.epa.gov/region7/mercury/elementary_school_activities.pdf">www.epa.gov/region7/mercury/elementary_school_activities.pdf</a></td>
</tr>
</tbody>
</table>
| 12-14  | [www.epa.gov/region7/mercury/middle_school_activities.pdf](http://www.epa.gov/region7/mercury/middle_school_activities.pdf)  
Mercury Activities pg 15 and 17 of Live, Learn and Play |
| 15-18  | [www.epa.gov/region7/mercury/high_school_activities.pdf](http://www.epa.gov/region7/mercury/high_school_activities.pdf)  
CFL Light Bulbs Activity  
Mercury Activities pg 15 and 17 of Live, Learn and Play |

Reflect:

- What are positive things which result from the use of Mercury in homes?
- What is the result when mercury is leaked into the food chain?
- Can you think of examples of where mercury might be found in your home?
- What should be done if a CFL bulb or a mercury thermometer breaks?
- What should NEVER be done when a mercury-containing object breaks and why?

Apply:

- What can we do to increase energy savings in our homes, schools and work place?
- How can we keep our homes, schools and work place safe from mercury accidents?
- Who should help if a compact fluorescent light bulb is accidently broken?
- In what way(s) can 4-H members help educate the public of mercury poisoning and the proper disposal of CF light bulbs?

Teaching Notes:
Section 3: Water Quality

Objective: Create an awareness of the importance of caring for our water supply.

Sub-Topics:
- Conservation
- Pollution
- Life Skills development

CD Resources:
- Water on Tap: What you need to know. – EPA
- Water Health Issues: Bottled Water Basics – EPA
- Evaluation (13-18 year olds)
- Aqua Times: A Drop in the Bucket – OCES
- Aqua Times: About Aqua Times – OCES
- A Day in the Life of a Drop Worksheet 1 – EPA
- A Day in the Life of a Drop Worksheet 2 – EPA
- A Day in the Life of a Drop Teacher Guide 1 – EPA
- Student and Family Pledge to Filter Out Bad Water Habits - EPA
- Water Use Table – EPA
- Fix a Leak: Family Fact Sheet – EPA
- Fix a Leak Week Student Worksheet- EPA
- Fix a Leak Week Teachers Guide- EPA

Additional Resources:
- Go Green Handout

Materials needed:
- Worksheets
- Pencils
- Gallon milk jug
- Measuring cup
- Eyedropper
- Food coloring
- One-gallon metal can

Life Skills being developed:
- Head Wise Use of Resources - using sound judgment; not wasteful; being responsible; setting priorities
- Heart Cooperation - to work or act together for a common purpose or mutual benefit
- Hands Self-Motivation - able to make the needed effort to carry out a task or a plan; personal will to take action
- Health Self Responsibility - taking care of oneself; being accountable for one's behavior and obligations; choosing for oneself between right and wrong

Background Information:
The nation’s water resources have immeasurable value. These resources encompass lakes, streams, ground water, coastal waters, wetlands, and other waters; their associated ecosystems; and the human uses they support (e.g., drinking water, recreation, and fish consumption). The extent of water resources (their amount and distribution) and their condition (physical, chemical, and biological attributes) are critical to ecosystems, human uses, and the overall function and sustainability of the hydrologic cycle.

Because the extent and condition of water can affect human health, ecosystems, and critical environmental processes, protecting water resources is integral to EPA’s mission.

The average American consumes 1 to 2 liters of drinking water per day, including water used to make coffee, tea, and other beverages. Virtually all drinking water in the United States comes from fresh surface water and ground water. Large-scale water supply systems tend to rely on surface water resources such as lakes, rivers, and reservoirs; these include the systems serving many large metropolitan areas. Smaller systems are more likely to use ground water, particularly in regions with limited surface water resources. Slightly more than half of the nation’s population receives its drinking water from ground
water, i.e., through wells drilled into aquifers (including private wells serving about 15 percent of U.S. households). If drinking water contains unsafe levels of contaminants, this contaminated water can cause a range of adverse human health effects. Among the potential effects are gastrointestinal illnesses, nervous system or reproductive effects, and chronic diseases such as cancer.

Surface waters and aquifers can be contaminated by various agents, including microbial agents such as viruses, bacteria, or parasites (e.g., E. coli, Cryptosporidium, or Giardia); chemical contaminants such as inorganic metals, volatile organic compounds (VOCs), and other natural or manmade compounds; and radionuclides, which may be manmade or naturally occurring. Contaminants also can enter drinking water between the treatment plant and the tap (for example, lead can leach into water from old plumbing fixtures or household or street-side pipes).

Aquifers and surface waters that provide drinking water can be contaminated by many sources. For example, chemicals from disposal sites or underground storage facilities can migrate into aquifers; possible contaminants include organic solvents (e.g., some VOCs), petroleum products, and heavy metals. Contaminants can also enter ground water or surface water as a result of their application to the land. Pesticides and fertilizer compounds (e.g., nitrate) can be carried into lakes and streams by rainfall runoff or snowmelt, or percolate through the ground and enter aquifers. Industrial wastes can contaminate drinking water sources if injected into containment wells or discharged into surface waters, as can mine waste (e.g., heavy metals) if not properly contained.

Natural sources of contaminants come as ground water travels through rock and soil. Water picks up naturally occurring contaminants such as arsenic, other heavy metals, or radionuclides.

Human wastes from sewage and septic systems can carry harmful microbes into drinking water sources, as can wastes from animal feedlots and wildlife.

While treatment can remove many chemical and biological contaminants from the water, it may also result in the presence of certain disinfection byproducts that may themselves be harmful, such as trihalomethanes.

Finished water can also become contaminated after it enters the distribution system, either from a breach in the system or from corrosion of plumbing materials, particularly those containing lead or copper. After water leaves the treatment plant, monitoring for lead in drinking water is done at the tap, and monitoring for microbial contaminants (as well as disinfection byproducts) occurs within the distribution system.

Sources: Drinking Water Quality
http://cfpub.epa.gov/eroe/index.cfm?fuseaction=list.listBySubTopic&lv=list.listByChapter&ch=47&s=203

Water
http://cfpub.epa.gov/eroe/index.cfm?fuseaction=list.listByChapter&ch=47
OKLAHOMA STATE 4-H LEADERSHIP COUNCIL
Traveling Workshop 2009-10

Do: Select an activity appropriate for the age of your audience.
Prepare flash cards or signs with each of the life skills and its definition. Post definitions where students can see them.

<table>
<thead>
<tr>
<th>Age</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>6-12</td>
<td>Drop in the Bucket Activity</td>
</tr>
<tr>
<td>13-18</td>
<td>• Water Conservation Pre-Test &amp; Post Test</td>
</tr>
<tr>
<td></td>
<td>• Water Quality Activities pg. 21 of Live, Learn and Play</td>
</tr>
</tbody>
</table>

Reflect:

Age 6 - 12 Activity
- How did this activity make you feel when you saw an example illustrating water and its relationship to the entire earth?
- Have any of you experienced "bad" water? What did it taste like and do you know what made it "bad"?
- What are ways our families use water that you hadn't thought about before today?
- In what ways do our families waste water? Or contaminate water?
- Does water quality affect animals and how?

Age 13 – 18 Activities
- Have any of you had an experience with bad water quality? What did it taste like and do you know what made it "bad"?
- What things on the pre-test have you made a practice of doing and why?
- What things have you never done and why?
- What things would be easy to begin practicing and why?
- What are other ways we use water in our homes? Schools? Communities? Club?
- What are ways we waste or contaminate water in our homes? Schools? Communities? Club?
- What are other ways we use water in our homes? Schools? Communities? Club?
- What are ways we waste or contaminate water in our homes? Schools? Communities? Club?

Apply:

- What can you do as an individual to conserve water? Or reduce contamination?
- What can your family do to conserve water? Or reduce contamination/pollution in the water shed?
- What can you/family/4-H club do to insure quality water for domestic animals, wildlife and plants?

Teaching Notes:
Section 4: Lead Poisoning

Objective: Gain knowledge of products which can cause lead poisoning and learn how to prevent lead poisoning in our homes and food supply.

Sub Topics:
- Sources of lead poisoning
- Methods for preventing lead poisoning

CD Resources:
- Arsenic and Lead Scavenger Hunt - National Institute of Environmental Health Science (grades 9-12)
- Using Chemistry to Treat Lead Poisoning - National Institute of Environmental Health Science (grades 9-12)
- Getting the Lead Out - National Institute of Environmental Health Science (grades 9-12)
- Lead Poisoning Home Check List: EPA
- Chip and Dusty Puppet Skit – EPA
- Buster Puppet – EPA
- Chip Puppet – EPA
- Dusty Puppet – EPA
- What You Need to Know About Lead Poisoning – EPA
- Lead and Mercury: Comparing two Environmental Evils – National Institute of Environmental Health Science
- Lead: How it Effects your Body and Health – Johns Hopkins
- Lead and Your Health - National Institute of Environmental Health Science
- Toxin Tic-Tac-Toe - National Institute of Environmental Health Science

Additional Resources:
- National Institute of Environmental Health Sciences http://www.niehs.nih.gov/health/topics/agents/lead/

Background Information:
The National Institute of Environmental Health Sciences says, “Lead is a highly toxic metal found in small amounts in the earth’s crust. Because of its abundance, low cost, and physical properties, lead and lead compounds have been used in a wide variety of products including paint, ceramics, pipes, solders, gasoline, batteries, and cosmetics.

Since 1980, federal and state regulatory standards have helped to minimize or eliminate the amount of lead in consumer products and occupational settings. Today, the most common sources of lead exposure in the United States are lead-based paint in older homes, contaminated soil, household dust, drinking water, lead crystal, and lead-glazed pottery.

According to the Washington State Department of Health over periods of prolonged exposure, a child may begin having learning difficulties, delayed physical and mental development and behavioral problems. Adults will begin to notice effects on their nervous system - vision and hearing impairment, loss of muscle coordination and lower performance on mental tests. This leads to damage of blood, kidneys, heart and reproductive systems. Continued lead exposure results in increased blood pressure, decreased fertility, cataracts, nerve disorders, muscle and joint pain, memory or concentration problems and damage to the blood, kidneys and heart.

Life Skills being developed:
- **Head** — Problem Solving — clearly identifying a problem and a plan of action for resolution of the problem
- **Heart** — Concern for others — to worry about, give attention to, the well being of others.
- **Hands** — Self-motivation — able to make the needed effort to carry out a task or a plan; personal will to take action.
- **Health** — Disease Prevention — to anticipate and ward off conditions that keep the body from functioning normally, such as infection or stress that impairs normal physiological functioning.
Materials/Supplies for 6-12 year olds:
- White Paper Bag
- Paints
- Scissors
- Crayons
- Glue
- Templates

Do: Select an activity appropriate for the age of your audience.
Prepare flash cards or signs with each of the life skills and its definition. Post definitions where students can see them.

<table>
<thead>
<tr>
<th>Age</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>6-12</td>
<td>Action Activity – Puppetry for Prevention</td>
</tr>
<tr>
<td></td>
<td>National Head Start Association: Lead Poisoning Prevention Classroom Activities</td>
</tr>
<tr>
<td></td>
<td>Source - <a href="http://www.nhsa.org/services/partnerships/lead_poisoning_prevention">http://www.nhsa.org/services/partnerships/lead_poisoning_prevention</a></td>
</tr>
<tr>
<td>13-18</td>
<td>Lead Poisoning Pages 10 – 12 of Live, Learn and Play</td>
</tr>
</tbody>
</table>

Reflect:
- What do you thinking about lead poisoning?
- Have you ever known someone with lead poisoning? Was it something they recovered from or do they continue to live with symptoms or health issues?
- What possible places in your home or school might there be lead?
- Why do you think this is an important issue to children and families?
- How can you prevent lead poisoning in your family?

Apply:
- What can be done at home to protect family, pets, livestock, soil, plants and food from lead poisoning?
- What might be the easiest way to lesson the possibility of lead poisoning at home? School? Community? And why?

Teaching Notes:
Conclusion/Summary - It takes each and every one of us doing our part to protect the environment.

The first “step” is awareness. We need to be aware of the issues and observant of our surroundings.

The second “step” is education. If we educate ourselves then we can practice critical thinking, problem solving, concern for others, disease prevention, self-responsibility and wise use of resources. Using these life skills we are then prepared to educate our peers and the public on the cause and effect of environmental issues. Being educated makes for “making the best better” in our clubs, communities, country and world.

The third “step” is changing behavior. Awareness and education do not accomplish results. Behavioral changes will accomplish results. We each must start with making changes. As those changes become habit, then we make additional changes and the cycle continues.