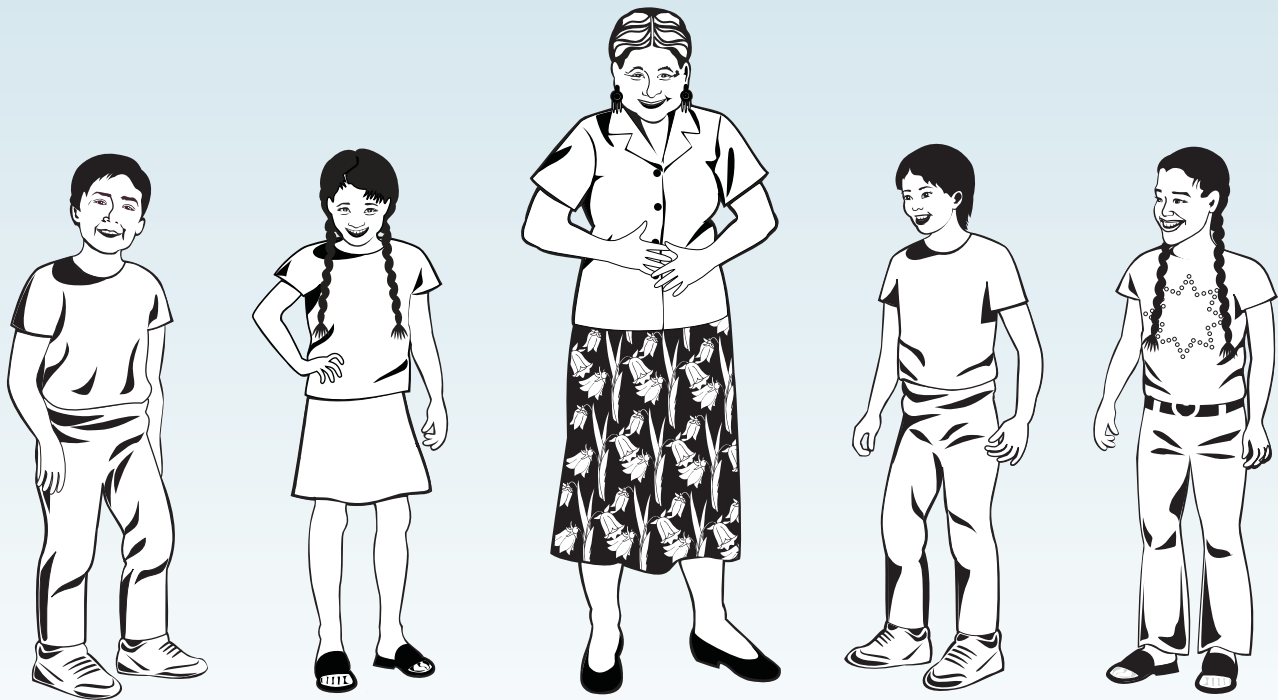




A Teacher's Guide to
How Mother Bear Taught
the Children about Lead



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Foreword

Children are the most important and valuable resource available to the Penobscot Indian Nation. To keep this resource healthy and strong, it is necessary to educate our children about the dangers of lead.

Providing this education in a format that is culturally sensitive and age appropriate only adds to the success and quality of the information in *How Mother Bear Taught the Children about Lead*.

It is my hope that Mother Bear will provide our children with fun, entertainment, and education for many generations. It would be wonderful to extend the use of this type of educational tool into other areas of environmental health hazards. Teaching our children to be aware of health hazards in the environment in this format will help to ensure that our children will grow to be healthy adults.

I would like to thank every person and agency who assisted in the development and publishing of *How Mother Bear Taught the Children about Lead*.

Patricia E. Knox-Nicola
Health Director
Penobscot Indian Nation

What Teachers Should Know about Lead Poisoning

Lead poisoning is a serious but *preventable* health problem. Lead can cause permanent damage to children—especially to unborn babies and children under six years old, who are generally more sensitive to lead’s damaging effects than adults. Lead affects virtually every system in the body. It is particularly harmful to the developing brain and nervous system of young children.

While *no* amount of lead in the body is safe, the effects of lead depend upon the level of lead in the blood. In children, very high levels can cause deafness, blindness, coma, convulsions, and even death. Moderate levels, too, can harm the brain and nervous system, kidneys, and liver. Even very low levels are associated with decreased intelligence, behavioral problems, decreased growth, impaired hearing, and decreased ability to maintain a steady posture.

Symptoms of Lead Poisoning in Elementary School Children

Children with lead poisoning may not look or act sick. Even if children do show some signs of lead poisoning, these symptoms can often be mistaken for other illnesses, such as the flu.

Early symptoms may include tiredness or restlessness, headache, stomachache, constipation, irritability, and poor appetite. As more lead accumulates, children may become clumsy and weak, and they may lose skills that they have already learned. More severe symptoms may include vomiting, loss of sight or hearing, and lapses in consciousness (that is, going in and out of consciousness).

Children who are *not* lead poisoned may also show some of these symptoms. Moreover, many of the symptoms of lead poisoning may also indicate other health conditions or learning and behavior problems. However, **if lead poisoning is suspected, the child should be referred to a medical professional for testing. The only way to know whether a child has been lead poisoned is through a simple test that measures the amount of lead in the child’s blood.**

Effects of Lead Poisoning

In school, children with lead poisoning may

- Fail to finish class assignments
- Disrupt their classes
- Perform poorly in class
- Be unable to tolerate frustration
- Have problems learning
- Be easily distracted
- Need a lot of supervision
- Have problems with other children
- Frequently call out in class
- Have difficulty staying seated
- Have difficulty concentrating

Moreover, the problems associated with lead poisoning remain long after childhood. In comparison with children who have not been exposed to lead, children who *have* been exposed are much more likely to have reading difficulties, poor vocabulary, attention problems, poor fine-motor coordination, greater school absenteeism, and lower class ranking. They are more likely to drop out of high school.

Additional Resources

Additional information on lead poisoning is available on the Internet from many agencies and organizations, including the following:

- U.S. Environmental Protection Agency (<http://www.epa.gov/lead/nlic.htm>)
- U.S. Department of Housing and Urban Development (<http://www.hud.gov/offices/lead>)
- U.S. Centers for Disease Control and Prevention (<http://www.cdc.gov/nceh/lead/lead.htm>)
- Alliance to End Childhood Lead Poisoning (<http://www.aeclp.org>)

About How Mother Bear Taught the Children about Lead

This book has been written for Native American children from across North America, in grades 3-4. It contains a variety of activities, including reading, writing, discussion (small group or whole class), a board game, drawing, a word search, and a quiz. It has been designed for use by classroom teachers in conjunction with other aspects of the curriculum, such as language arts and science activities. Supplementary material is provided to teachers for related music and cooking activities.

Objectives

1. Children will identify the dangers associated with lead.
 - Lead is a poisonous substance.
 - If lead gets into children's bodies, it can make them sick.
2. Children will recognize the sources of lead dangers in their environments.
 - The most common sources of lead are the dust and flakes from old, lead-based paint.
 - Lead-based paint is found in many buildings constructed before 1978.
 - Lead-based paint is particularly common on old windows, doors, stairs, railings, and porches.
 - Lead dust and flakes are common where workers are fixing old houses.
 - Lead dust and flakes may be in the soil around old houses.
 - Other sources of lead include fishing sinkers, shotgun pellets, water from old lead pipes, and soil contaminated by leaded gasoline.
3. Children will recognize ways they can protect themselves and younger siblings from lead dangers.
 - Children should never touch paint dust or flakes.
 - Children should ask adults to wash away paint flakes and dust.
 - Adults should wash paint flakes and dust with a damp, soapy rag, which should be discarded after use. Adults should **not** vacuum or dry dust. These methods can spread lead dust.
 - Children should **not** perform this cleanup themselves.
 - Children should wash their hands before they eat and after they play.
 - Children should leave their shoes at the door and wear socks or slippers in the house.
 - Children should eat healthy foods that are low in fat and high in calcium, iron, and zinc—for example, lowfat milk and yogurt, fruits, vegetables, beans, and lowfat meats.

Suggestions for Using the Activities in This Book

Each teacher knows his/her class best and will make appropriate decisions concerning use of this book. Below are some suggestions to consider:

- We recommend that teachers **not** go through the entire book in one session. The book consists of four sections, one for each season, and it was designed so that a teacher could complete one section per session. Your use might vary, depending on the time available, the fit with other curricular needs, and class interest and attention.
- Although children should have a break (a few hours or even a few days) between the sections, we suggest that the activities be done in the sequence in which they appear. Built-in repetition should serve to review and reinforce the key concepts.

This book, set at a contemporary intertribal gathering, has been written to inform children from tribes across North America about lead safety. The main characters include Grandmother, a wise and respected storyteller, and her grandson, Jesse Bright Sun. Jesse's friends include Molly Small Deer, from the eastern coast; Kyle Fire Walker, from the western coast; and Carla Laughing Girl, from the land of great lakes.

Grandmother tells the children a series of stories about Mother Bear, who taught their ancestors about the dangers of lead and about how they could protect themselves and their brothers and sisters. In the tradition of tribal elders, Grandmother is passing along the important information that Mother Bear conveyed.

Summer

The modern story starts in the summer, during a gathering of tribes from across the United States. We recommend that you read the story to the whole class or to small groups, while children follow along in their own books. If the children's reading levels are appropriate, they might read the story themselves or in small cooperative groups. The illustrations are designed to serve as visual clues for children who cannot readily read all the words.

Grandmother begins by telling a story in which Mother Bear comes to protect an ancestor of Molly Small Deer. This story explains the three key messages of the book:

1. Mother Bear introduces the idea that the dust from old lead-based paint can be dangerous, especially to babies and children.
2. She teaches Small Deer that lead can hide in the following places:
 - Dust and flakes from old paint.
 - Water from old pipes
 - Bullets, shotgun pellets, and fishing sinkers.
3. Then she tells Small Deer how to stay safe:
 - Stay away from paint dust and flakes.
 - Ask a grownup to clean up paint dust and flakes.
 - Wash hands before eating and after playing.
 - Leave shoes at the door and wear socks or slippers in the house.
 - Let water run from a faucet until it is cold.
 - Eat healthy foods.

We recommend that all three parts of this section—identifying lead as a hazard, explaining where lead might be found, and describing actions that children can take to protect themselves—be covered in one session. We want to ensure that children end with the message that they can help ensure their own safety.

After hearing the story, children can practice applying what they have learned by searching a picture for lead dangers. They can do this individually, in small groups, or as a class.

Next, children are given an opportunity to process the information further and to connect it to their own lives. They are asked to discuss possible sources of lead dangers in their own homes. The recommended discussion could take place in small groups or with the whole class. If the children in your class seem fearful, emphasize that Mother Bear explained that they can take simple steps to stay safe from lead dangers.

Fall

If some time has passed since the children read the summer story, you might ask them what they remember. If necessary, help them to recall the three key messages noted above before you begin reading the fall story. Again, depending on the children's reading levels, you may decide to read the story aloud as they follow along or to have them read it individually or in collaborative groups.

The fall story focuses on dangers that can arise when adults perform renovations or repairs on houses that contain lead-based paint. Again, Mother Bear emphasizes simple safety precautions: staying away from work areas where lead paint might be disturbed, keeping younger children away from these areas, and letting an adult to clean up dust and flakes with a damp, soapy rag.

For this story, the recommended discussion concerns actions that children can take to be safe. The discussion could be done in small groups or with the whole class.

Winter

As before, help the children to recall the key lead messages before you start reading this story or having the children read it.

The winter story talks about shotgun pellets as a source of lead associated with hunting. After you read the story, help the children talk more about what they could do if they saw lead dangers around their own homes. Remind them that Mother Bear emphasizes that adults (like the grandfather in the story) are primarily responsible for removing lead dangers.

This story is followed by a board game designed for two to four players. Before you start the game, review the directions so that you can help the children understand them. You'll need to provide coins (pennies or nickels) for tossing.

A word search follows the board game. It could be done as an in-class assignment (individually or in small groups) or as a homework assignment. It is not intended to be graded.

Spring

Again, please help the children remember the key lead messages before they read this story.

The spring story teaches children that soil can contain lead, either from old paint dust and flakes or from old gasoline. Gardens should be made in areas that have not been contaminated by lead.

The children are then instructed that certain categories of foods can help keep their bodies safe from lead. The story is followed by a food quiz, in which they are asked to identify the particular foods that can help. Again, this quiz is not intended to be graded. Children can complete it individually, in small groups, or with the whole class. To apply this information to their own experiences, children are asked to identify their own favorite foods and, if necessary, to think about healthy substitutes.

After this activity, Grandmother gives the fictional children an opportunity to ask questions. She reassures these children that their own paints and pencils are safe because they do not contain lead. The next activity asks your children whether they have any questions. Help them to answer their questions and to recognize other adults who can help them in the future.

After this discussion, the children can take a lead-safety pledge.

The final activity is drawing a lead safety poster to take home. You'll need to provide crayons, markers, pencils, pens, or paint.

The following pages contain some supplemental activities that you might choose to use. If you wish, you can photocopy the song and the recipes for the children to take home.

Following the activities is a sample letter that you can send home to the parents or guardians explaining what their children have been studying.

Pretest/Post-test

A pretest/post-test is included with this teacher guide. You can test the children before they use these materials and again afterwards to determine what they have learned.

Certificate of Completion

A sample certificate of completion is also included with this teacher guide. You can photocopy this certificate and distribute the copies to all the students who complete the curriculum. Children can color in their certificates if they wish.

Supplementary Activities

Mother Bear's Song

Mother Bear sang this song to help the children remember how to stay safe from lead. You can sing the song to any chant that you like. You can use drums and other instruments as you sing. Your class can sing the song as a group, or you can divide the song into individual or small-group parts. One group can sing the words that are darker (in bold); the other group can sing the words that are lighter.

Hear my words, my children.

Hear my words, my children.

Lead can hurt your body.

Lead can hurt your mind.

Lead can hurt your spirit.

Lead is bad for children.

Hear my words, my children.

Hear my words, my children.

You can keep your body strong.

You can keep it safe from lead.

You can keep your fine mind strong.

You can keep it safe from lead.

You can keep your spirit strong.

You can keep it safe from lead.

Here is my song, my children.

Here is my song, my children:

Look out for lead dangers.

— **Mother Bear sings.**

Tell grownups of dangers.

— **Mother Bear sings.**

Keep away from paint dust.

— **Mother Bear sings.**

Keep away from paint flakes.

— **Mother Bear sings.**

Wash your hands after playing.

— **Mother Bear sings.**

Wash your hands before eating.

— **Mother Bear sings.**

Leave your shoes at the door.

— **Mother Bear sings.**

Wear your socks in the house.

— **Mother Bear sings.**

Run water 'til cold.

— **Mother Bear sings.**

Eat foods that are healthy.

— **Mother Bear sings.**

Don't touch fishing sinkers.

— **Mother Bear sings.**

Don't touch shotgun pellets.

— **Mother Bear sings.**

I want children safe.

— **Mother Bear sings.**

So I give you my song.

— **Mother Bear sings.**

Now this is your song.

— **Mother Bear sings.**

Now you can be safe.

— **Mother Bear sings.**

Can you add some lines about staying safe from lead to this song? If you wish, you can work with your classmates to think of new words to add. Write your words below.

Cooking Healthy Foods

The recipes that follow are adaptations of traditional Native American foods. These recipes are low in fat and provide iron, calcium, and zinc, which can help to keep your body healthy and protect it from the damaging effects of lead.

Clam (or Quahog) Chowder

This recipe makes about 6 cups of soup.

Materials you'll need

- Knife
- Cutting board
- Measuring cups
- Large cooking pot

Ingredients

- 2 tablespoons vegetable oil
- 2 medium onions
- 6 medium potatoes
- 2 cups of chopped clams (fresh or canned), with clam juice
- 2 cups of lowfat milk
- salt and pepper to taste

Directions

1. Carefully cut the onions into small pieces.
2. Heat the vegetable oil in the cooking pot. Add the chopped onion and cook over medium heat until the onion turns brown.
3. Carefully cut the potatoes into small pieces. Add the potato and $\frac{1}{4}$ cup clam juice to the onions. Cook until the potatoes are soft.
4. Add chopped clams and milk, and heat. Add salt and pepper to taste.

Corn Chowder

This recipe makes about 6 cups of soup.

Materials you'll need

- Knife
- Cutting board
- Measuring cups
- Large cooking pot

Ingredients

- 2 tablespoons vegetable oil
- 2 medium onions
- 1 green bell pepper
- 6 medium potatoes
- 4 cups corn (fresh, canned, or frozen)
- salt and pepper to taste

Directions

1. Carefully cut the onions and the pepper into small pieces.
2. Heat the vegetable oil in the cooking pot. Add the chopped onions and pepper, and cook over medium heat until the onion turns brown.
3. Carefully cut the potatoes into small pieces. Add the potato and $\frac{1}{4}$ cup water to the onions. Cook until the potatoes are soft.
4. Add the corn and heat. Add salt and pepper to taste.

Bean Pinwheels

This recipe makes 12 pinwheels

Materials you'll need

- Medium-size mixing bowl
- Two sets of measuring spoons (one for dry ingredients and one for wet ingredients)
- Measuring cups
- Mixing spoons
- Toothpicks
- Cutting board and knife
- Sturdy metal fork for mashing beans

Ingredients

- $\frac{3}{4}$ cup cooked kidney or pinto beans
- 1 stalk celery
- 1 tablespoon chopped onion or green pepper
- 2 teaspoons lowfat mayonnaise or plain yogurt
- 2 flour tortillas
- 1 teaspoon vinegar
- $\frac{1}{4}$ teaspoon chili powder
- $\frac{1}{8}$ teaspoon garlic powder
- Optional: tomatoes, lettuce, sliced cheese, green pepper strips

Directions

1. Measure $\frac{3}{4}$ cup cooked kidney or pinto beans into the mixing bowl. Using the metal fork, mash the beans.
2. Cut the celery into small pieces and add to the beans. Note: Children may be able to chop celery with adult supervision.
3. Add 1 tablespoon chopped onion or green pepper. Note: Children may be able to cut up onion or green pepper with adult supervision.
4. Stir all these ingredients together.
5. Measure 2 teaspoons of lowfat mayonnaise or plain yogurt and add to the bean mixture.
6. Add to the mixture 1 teaspoon vinegar, $\frac{1}{4}$ teaspoon chili powder, and $\frac{1}{8}$ teaspoon garlic powder. Stir all the ingredients together until they are well mixed.
7. Place half the bean mixture on one edge of a tortilla and spread until the whole tortilla is covered with the bean mixture. Roll the tortilla over until it reaches the opposite edge. Insert six toothpicks through the rolled tortilla so it cannot unroll. Cut the tortilla roll into six wheels. Cover with plastic wrap or wax paper and refrigerate until the snack is served. Repeat with the second tortilla.

Optional: The pinwheels can be served on pieces of lettuce with tomato wedges, cheese slices, or leftover green pepper cut in strips.

Recipe adapted from *Making Bag Lunches, Snacks and Desserts Using the Dietary Guidelines* (USDA/HNISA H&G Bulletin No. 232-9).

A Note to Parents or Guardians

From: _____

Date: _____

In school, your child has been learning about lead poisoning. Lead poisoning is a serious but *preventable* health problem. Lead can cause permanent damage to young children. It can harm the brain and other parts of the nervous system and can cause long-term behavior and learning problems.

Millions of houses and apartments built before 1978 have paint that contains lead. Dust and flakes from this paint are the major sources of lead poisoning in children. Lead from other sources can also be found in the soil and in the water.

Symptoms of Lead Poisoning in Elementary School Children

Children with lead poisoning may not look or act sick. Even if children do show some signs of lead poisoning, these symptoms can often be mistaken for other illnesses, such as the flu.

Early symptoms may include	As more lead accumulates, children may	More severe symptoms may include
<ul style="list-style-type: none">• Tiredness or restlessness• Headache• Stomachache• Constipation• Irritability• Poor appetite	<ul style="list-style-type: none">• Become clumsy and weak• Lose skills that they have already learned	<ul style="list-style-type: none">• Vomiting• Loss of sight or hearing• Becoming unconscious

In school, children with lead poisoning may

- Disrupt their classes
- Perform poorly
- Be unable to tolerate frustration
- Have problems learning
- Be easily distracted
- Have difficulty concentrating

Children who are *not* lead poisoned may show some of these symptoms from time to time, although usually to a much milder degree. Moreover, many of the symptoms of lead poisoning may also indicate other health conditions or learning and behavior problems. **However, if you suspect lead poisoning, you should have your child tested by a doctor or other medical professional.** A simple blood test can tell you if your child has been lead poisoned.

Protecting Children from Lead Poisoning

Here are the important messages your children have been taught about lead poisoning:




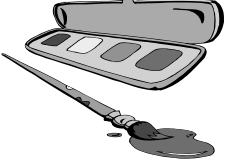
- Children should never touch paint flakes or paint dust.
- If children see paint flakes or paint dust, they should ask a grownup to wash away this material with a damp, soapy rag. The grownup should then throw away the rag. (Because vacuuming and dusting with a dry rag can spread lead dust, they are **not** recommended.)
- Children should wash their hands before they eat and after they play. Washing their hands will help to remove lead dust.
- Children should leave their shoes at the door and wear socks or slippers in the house. This helps to keep lead from the soil out of the house.
- Children should eat healthy foods, like lowfat milk and yogurt, fruits and vegetables, beans, and lean meat. These foods may help to protect their bodies from the harmful effects of lead.

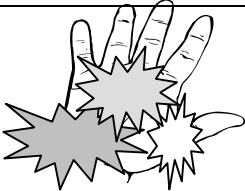


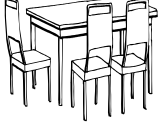
For further information, contact your local health care provider or your local health department.





Pretest/Post-test

Student's name _____ Date _____

Lead is bad for you. What else do you know about lead?
You can use this test to see how much you know about lead. Circle the **best** answer for each question.




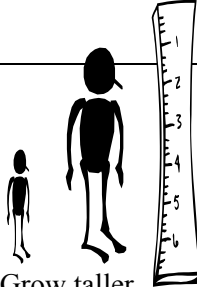
Question 1			
Lead can be found in			
			
A pencil	Old paint	A penny	A paint box

Question 2			
Lead can get inside my body when I			
			
Touch paint chips	Walk the dog	Eat fruit	Clean the table

Question 3			
If I see lead paint dust or lead paint flakes, I should			
			
Call 911	Clean it up	Tell a grownup	Take medicine



Question 4

If lead gets inside my body, I think that I will

			
Get sick	Get energy	Get strong	Grow taller


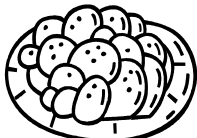
Question 5

To stop lead from making me sick, I should

	or	
Wash my socks with soap and water		Wash my hands with soap and water



Question 6

To stop lead from making me sick, I should

	or	
Eat healthy foods		Eat cookies, chips, and candy




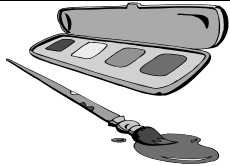
Question 7

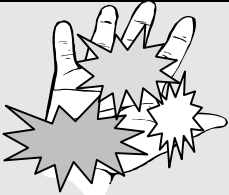


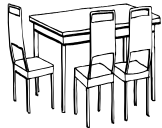
To stop lead from making me sick, I should





	or	
Wear my shoes all the time		Leave my shoes at the door

Pretest/Post-test Answer Key

The shaded boxes show the correct answers.

Question 1			
Lead can be found in			
			
A pencil	Old paint	A penny	A paint box

Question 2			
Lead can get inside my body when I			
			
Touch paint chips	Walk the dog	Eat fruit	Clean the table

Question 3			
If I see lead paint dust or lead paint flakes, I should			
			
Call 911	Clean it up	Tell a grownup	Take medicine

Question 4

If lead gets inside my body, I think that I will



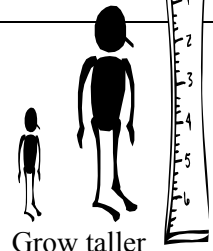
Get sick



Get energy



Get strong



Grow taller

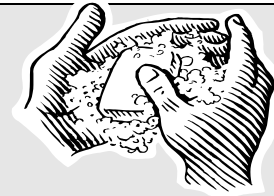
Question 5

To stop lead from making me sick, I should



Wash my socks with soap and water

or



Wash my hands with soap and water

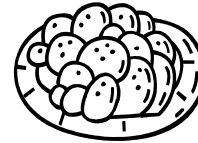
Question 6

To stop lead from making me sick, I should



Eat healthy foods

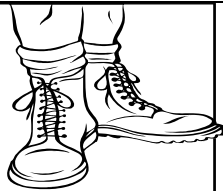
or



Eat cookies, chips, and candy

Question 7

To stop lead from making me sick, I should



Wear my shoes all the time

or



Leave my shoes at the door

Certificate of Completion



_____ (Student's name)

has completed



How Mother Bear Taught the Children about Lead

a lead-poisoning prevention curriculum for Native American children

Mother Bear taught the children

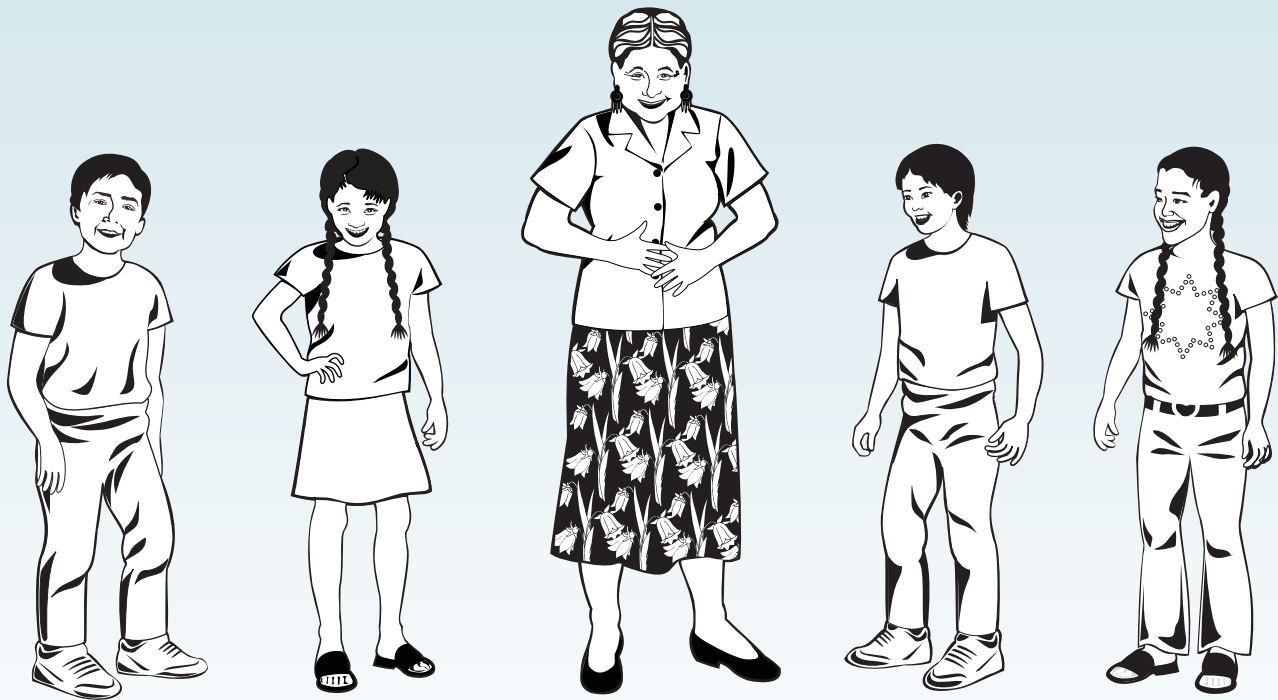
- to look out for lead dangers.
- to tell a grownup if they see any lead dangers.
- to keep away from lead paint dust and lead paint flakes.
- to wash their hands before they eat and after they play.
- to leave their shoes at the door and wear socks or slippers in the house.
- to eat healthy foods.

_____ (Teacher's name)

_____ (Date)



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University of
Connecticut
COOPERATIVE
EXTENSION SYSTEM
*College of Agriculture
and Natural Resources*

