

THE LEAD SCENARIO

Life Skills

- ◆ Problem Solving
- ◆ Teamwork
- ◆ Public Speaking



KEY CONCEPT:

Students develop problem solving techniques while they learn about lead poisoning.

SUBJECT MATTER OUTCOMES:

Students will gain knowledge of sources and symptoms of lead poisoning as well as preventative measures and solutions.

TARGETED AGE: 5th Grade

TIME NEEDED: 60 minutes

MATERIALS NEEDED:

- Mystery scenarios about lead
- Worksheet 3.1
- Editor's TIP SHEET on "Creating a Column"

ADVANCE PREPARATION:

Review *Project Overview* and *Background Basics*

FLORIDA'S SUNSHINE STATE STANDARDS:



HE.A.1.2.2	LA.B.1.2.3
HE.A.1.2.5	LA.B.2.2.3
HE.A.1.2.6	LA.C.1.2.1
HE.B.1.2.2	LA.C.1.2.4
HE.B.3.2.2	LA.D.1.2.2
HE.B.3.2.5	LA.D.2.2.1
HE.C.2.2.1	TH.A.1.2.1
LA.B.1.2.1	TH.A.2.2.1
LA.B.1.2.2	TH.E.1.2.4

FAST FACTS

The historical use of lead acetate (sugar of lead) by the Roman Empire as a sweetener for wine is considered by some to be the cause of the dementia which affected many Roman emperors.

did you know?

LET'S BEGIN

What environmental hazards have we discussed so far? Responses vary based on curriculum choices. Today we are going to add to our list of environmental hazards.

Each of you is going to become an investigative reporter. What is an investigator? Response should include the idea that investigators look into a situation, try to determine the related facts, and then report on those facts.

You are going to be looking at a number of different situations that involve a mystery hazard. I am going to split you into groups and each group is going to get one scenario that includes the mystery hazard. Place students into small groups and provide each group with ONE scenario on lead. (Scenarios can be broken up into difficulty levels. Choose the most appropriate grouping for your classroom - see below.)

Based on Style of Scene

Scenes 1 and 2 present a similar situation with different solutions.
 Scenes 5 and 6 present a similar situation with different solutions.
 Scenes 3 and 4 present additional sources of lead poisoning and symptoms.

Based on Processing Difficulty

Easy: 1, 2, 5, and 6
Average: 1, 3, 4, and 5
Advanced: only 1, 3, 4, and 5 (Have students follow up with suggestions on preventative measures that should or could have been taken.)

The scenario I have handed your group is special because today, not only do you get to be investigative reporters, but you also get to be ACTORS! You have 15 minutes to read over the scenario and then, as a team, develop a skit from the information that is on your sheet. Each group member needs to participate as a character in the skit. Write a short skit that you will perform in front of the class. Provide 15 minutes for group discussion and skit planning.

LESSON THREE: LEAD

At the end of 15 minutes, pass out Worksheet 4.1.

Now, let's start our investigative reporting. Write down anything important you see on this worksheet. Make sure you pay attention to every skit, because at the end of each one, we are going to discuss what was going on in the scene. Remember, we are looking for a mystery hazard. Let's begin...



EXTRA! EXTRA!

The Lead Scenario

Today's hazard is very common. Most people don't even know that they are coming into contact with it. Group 1, Scene 1.

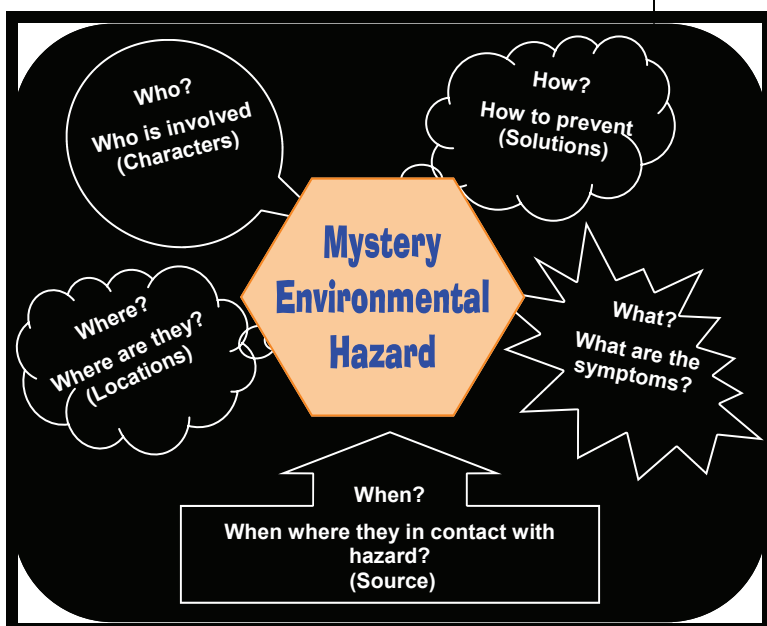
Once skit is done...Now, as a class, let's list what we saw in this skit. We are going to use our blackboard concept map. This is just a listing of the observations, discussion comes after the final skit. There are crucial questions when reporting the news: Who, What, Where, When, How...

- These questions will be repeated at the end of each skit.
- Guide students towards recognizing the connections between symptoms, environments, and health effects in the different skits.

Now we have looked at each of our scenarios. We have made a list about what is going on in each scene, who is involved, where it is happening, and how people are affected by the mystery hazard. Now let's talk about what we think is going on.

LET'S REFLECT

1. What did you learn from the scenarios?
 - What was the mystery hazard?
 - What are common symptoms of lead poisoning?
 - What can cause lead poisoning?
 - How can lead poisoning be prevented?
2. What are some areas in your community that might be a potential source of lead? What can you do to protect yourself and your family?
3. Was it difficult to work *backwards* from the skit to discover what the mystery hazard was? What steps did you use to find your answer?
4. As a team, what strategies did you use to create your skit? Personally, what techniques did you use in your acting?



THINK ALL ABOUT IT!



QUICK FACTS

In the United States, leaded gasoline emissions were deposited in the soil near highways and busy roads and continue to affect many family yards. It is estimated that thousands of old lead pipes continue to serve as water service lines in many older U.S. cities.

The U.S. has made significant progress in eliminating sources of lead in recent years.

- Leaded gasoline was phased out during the early 1990s.
- Leaded plumbing solder and lead solder on food cans were both banned during the 1980s.
- Lead-based paint was banned in 1978. However, today there are still about 38 million homes that contain lead paint—about 40% of all U.S. housing.

Exposure to lead can lead to a variety of health problems. These problems include:

Low to moderate exposure:

- behavioral problems
- learning difficulties
- slowed or stunted growth
- impaired hearing

High levels of exposure:

- kidney damage
- mental retardation
- seizures
- comas
- death

LET'S APPLY

1. Did different team members have different guesses about the mystery hazard? Why does this happen in groups? How does it improve the group's chance of finding the correct answer?
2. Why is it important to use the who, what, why, when, where, and how questions when researching? What could happen to your information if you skip one of these questions?
3. Was it difficult to perform in front of your classmates? How do you think you would have felt if they were strangers? What skills can help you be more effective at public speaking/performing?
4. How does this way of problem solving relate to how doctors work to solve medical mysteries? How can you help your doctor by being aware of your environment?

IN TODAY'S EDITION...

FROM THE
EDITOR'S DESK

This assignment is part of a series of newspaper-related pieces that each student will include in his/her own Children's Environmental Health Newspaper. At the conclusion of this unit, students will bring the newspapers home to educate parents and other family members about the possible dangers in their own environments.



Have students choose **ONE** of the following article types to create for their newspaper:



- Write an **ENTERTAINMENT REVIEW** about one of the skits you saw.
- Write a **HOME HELPER COLUMN** advising your readers about how to prevent lead poisoning in their homes.
- Write a **HEALTH WATCH COLUMN** advising your readers about symptoms to look for if they are concerned about lead poisoning.

To aid students in creating the above newspaper pieces, provide them with the Editor's **TIP SHEET** on "Creating a Column."

Need more ideas? Below are activities that can be integrated into this lesson for a challenge or to provide variety.

- Have students perform skits for another class in the school or for parents.
- Have students research more information on lead poisoning (sources, symptoms, and preventative measures).
- Have students investigate current news-related articles on lead poisoning.

NOTES:



WHAT DID YOU NOTICE?

_____ Name

SCENE #1

NOTES

Characters:

Janine	Additional Characters
Mom	Grandparent
Dad	Aunt/Uncle
Doctor Smith	Additional Siblings

SCENE #2

NOTES

Characters:

Janine	Additional Characters
Mom	Grandparent
Dad	Aunt/Uncle
Paint Professional	Additional Siblings

SCENE #3

NOTES

Characters:

Lauren	Additional Characters
Mom	Grandparent
Dad	Aunt/Uncle
Doctor	Additional Siblings

SCENE #4

NOTES

Characters:

Andrew	Additional Characters
Mom	Grandparent
Dad	Aunt/Uncle
	Additional Siblings

SCENE #5

NOTES

Characters:

Danny	Additional Characters
Peter	Grandparent
Danny's mom	Aunt/Uncle
Peter's mom	Additional Siblings

SCENE #6

NOTES

Characters:

Danny	Additional Characters
Peter	Grandparent
Grandfather	Aunt/Uncle
	Additional Siblings

SCENE #1

Directions:

Each group is getting a different scenario. Your job, as a group, is to **read the scenario** and work together to **develop a short skit** about your scene. You need to present the information about your scene clearly.

Once every group has finished preparing, your group will **perform your skit** for the rest of the class. You will act out the scenario as it is written on your paper. Once you are finished presenting the skit, the other groups will be quizzed to see if they caught what the answers to the 3 questions were. It is important that you **pay attention to all of the other groups** as they act out their skit because you will use this information in the next activity.

Your Scene:

Janine and her family have just moved into a new home. Janine's parents have purchased an older, bigger home to renovate so that their family will have more room. Although Janine likes her new room, she is anxious to get her room painted her favorite color: purple. Janine decides not to wait for her parents' help and begins peeling off the paint that is already chipping around her bedroom windows. She notices a lot of dust on the chipping paint, but is so excited for the new paint that she keeps on peeling. Over the next couple of weeks, Janine begins to feel sick and begins to miss a lot of school. Although she thinks it is only a stubborn flu, this may not be the case. Janine's parents take her to the doctor. Doctor Smith says that Janine has come into contact with a very common environmental hazard that can make people sick, especially children.

Characters:

Janine	Dad
Mom	Doctor Smith

SCENE #2

Directions:

Each group is getting a different scenario. Your job, as a group, is to **read the scenario** and work together to **develop a short skit** about your scene. You need to present the information about your scene clearly.

Once every group has finished preparing, your group will **perform your skit** for the rest of the class. You will act out the scenario as it is written on your paper. Once you are finished presenting the skit, the other groups will be quizzed to see if they caught what the answers to the 3 questions were. It is important that you **pay attention to all of the other groups** as they act out their skit because you will use this information in the next activity.

Your Scene:

Janine and her family have just moved into a new home. Janine's parents have purchased an older, bigger home to renovate so that their family will have more room. Although Janine likes her new room, she is anxious to get her room painted her favorite color: purple. Janine notices that paint that is already chipping around her bedroom windows. She also notices a lot of dust near the chipping paint. She has never seen this happen before, so she decides to ask her parents for help instead of peeling off the old paint herself. Her parents realize that the peeling paint might pose an environmental hazard, so they hire a professional to come and finish renovating Janine's room. He checks the rest of the house for possible problem areas. Before he leaves, he congratulates the family for being so careful when dealing with potential hazardous materials.

Characters:

Janine	Dad
Mom	Paint Professional

SCENE #3

Directions:

Each group is getting a different scenario. Your job, as a group, is to **read the scenario** and work together to **develop a short skit** about your scene. You need to present the information about your scene clearly.

Once every group has finished preparing, your group will **perform your skit** for the rest of the class. You will act out the scenario as it is written on your paper. Once you are finished presenting the skit, the other groups will be quizzed to see if they caught what the answers to the 3 questions were. It is important that you **pay attention to all of the other groups** as they act out their skit because you will use this information in the next activity.

Your Scene:

Lauren's dad renovates old houses. He usually comes home covered in dust and dirt. Over the summer, Lauren decided to go to work with her dad. She wanted to help him renovate a beautiful old home that was built in 1954. Lauren figured she could help her dad by bringing him tools he needed or helping sand any rough patches around the house. Every day Lauren came home covered in dust and dirt, just like her dad. After two weeks of work, Lauren began to complain that she had headaches and stomachaches. Her dad just thought she was tired of working with him, but she said she still wanted to go to the house to help. She kept working, but still had headaches and stomachaches almost every day. She was never really hungry, since her stomach hurt. After a month of feeling bad, Lauren's mom took her to the doctor. The doctor tested Lauren for several illnesses including the flu, lead poisoning, and food poisoning.

Characters:

Lauren	Dad
Mom	Doctor

SCENE #4

Directions:

Each group is getting a different scenario. Your job, as a group, is to **read the scenario** and work together to **develop a short skit** about your scene. You need to present the information about your scene clearly.

Once every group has finished preparing, your group will **perform your skit** for the rest of the class. You will act out the scenario as it is written on your paper. Once you are finished presenting the skit, the other groups will be quizzed to see if they caught what the answers to the 3 questions were. It is important that you **pay attention to all of the other groups** as they act out their skit because you will use this information in the next activity.

Your Scene:

Andrew loves the new neighborhood park because there are a ton of places to play. This area used to be an industrial site, so there are huge fields to play soccer on. He especially loves the big piles of dirt on the edge of the property which were left over from the construction site next door. Andrew spends all of his time at the park playing in the dirt with his toy cars. When he is hungry, he runs back to his mom to get his snack. Without washing his hands, he pops the snack into his mouth and races back to continue playing. Andrew's mom notices that he has become very irritable lately but just assumes he is just coming down with something. Andrew's dad, who is a doctor, soon begins to notice that Andrew has other symptoms, such as headaches and aches in his body, and has become even more irritable. It sounds like it might be some type of toxin. He talks to Mom and tries to determine where Andrew was and what he might have come into contact with.

Characters:

Andrew
Mom
Dad

SCENE #5

Directions:

Each group is getting a different scenario. Your job, as a group, is to **read the scenario** and work together to **develop a short skit** about your scene. You need to present the information about your scene clearly.

Once every group has finished preparing, your group will **perform your skit** for the rest of the class. You will act out the scenario as it is written on your paper. Once you are finished presenting the skit, the other groups will be quizzed to see if they caught what the answers to the 3 questions were. It is important that you **pay attention to all of the other groups** as they act out their skit because you will use this information in the next activity.

Your Scene:

Danny loves to go exploring around his grandparents' property. One day, he and his friend Peter are exploring an area of the property they have never been to. Danny notices something sticking up out of the ground and runs over to see what it is. Danny finds an old water pump and starts pumping to see if it works. He is surprised when, after a few pumps, water begins to trickle out of the pump. Seeing how corroded and dirty the pump is, Danny makes sure to wipe down the spout before he and Peter drink from it. They decide not tell anyone about the water pump and instead use it as their own personal water supply when they are out playing. Soon Danny begins to have strange symptoms. He has lost his appetite, is always tired, and has a constant headache. Peter's mom calls Danny's mom to let her know that Peter can't come over to Danny's this weekend because he is ill. She says that Peter has the same symptoms as Danny.

Characters:

Danny	Danny's mom
Peter	Peter's mom

SCENE #6

Directions:

Each group is getting a different scenario. Your job, as a group, is to **read the scenario** and work together to **develop a short skit** about your scene. You need to present the information about your scene clearly.

Once every group has finished preparing, your group will **perform your skit** for the rest of the class. You will act out the scenario as it is written on your paper. Once you are finished presenting the skit, the other groups will be quizzed to see if they caught what the answers to the 3 questions were. It is important that you **pay attention to all of the other groups** as they act out their skit because you will use this information in the next activity.

Your Scene:

Danny loves to go exploring around his grandparents' property. One day, he and his friend Peter are exploring an area of the property they have never been to. Danny notices something sticking up out of the ground and runs over to see what it is. Danny finds an old water pump and starts pumping to see if it works. He is surprised when, after a few pumps, water begins to trickle out of the pump. Seeing how corroded and dirty the pump is, Danny makes sure to wipe down the spout before they drink from it. The next day, Danny tells his grandfather about the pump. He takes his grandfather to see the pump. His grandfather, an old welder, said that it was a good thing that the boys did not keep this a secret. He told Danny that they could have gotten sick if they had continued to drink the water from the pump. He pointed out that the joints were welded together with lead.

Characters:

Danny
Peter
Grandfather