

Welcome to the Teachers' Instructions area for this student activity. Here you'll find directions and suggestions for using this activity along with the materials you need to evaluate your students' work.

Title: Lead & Children: Toxic Exposure!

Audience: Middle

Duration: 60 minutes

Subject Area(s):

Health - Environmental health

Language Arts - Writing (composition)

Language Arts - Reading

Grade Level(s): 6,7,8

Teacher Directions:

Lead is a highly toxic metal that produces a range of adverse health effects, particularly in young children. Childhood lead poisoning remains a major preventable environmental health problem in the United States. Currently, over 400,000 children younger than 6 years of age in the United States have blood lead levels high enough to adversely affect their intelligence, behavior and development, causing speech delays, hyperactivity, attention deficit disorder, learning disabilities, behavior disorders, neurological and renal damage, stunted growth, anemia, hearing loss, and cognitive damage. Minority and poor children are disproportionately affected. Recent studies of the health impacts of lead have shown that there is no safe level of lead exposure. The combination of high toxicity, a long life in the environment, and the ability to build up in food chains makes lead one of the most problematic chemicals for human and ecological health. More often lead ingestion by children comes, not from the ingestion of paint chips, but from lead-tainted dust, freed by cracking and peeling, on furniture, toys, and in the air. Homes in any neighborhood built before 1978 often have layers of lead paint beneath newer layers of lead-free paint. Lead poisoning is a major environmental health problem in urban Baltimore/Washington. Under Maryland law, pre-K, Kindergarten and 1st grade public school students who have lived in areas that put them at risk for exposure to lead must have their blood lead levels tested before they can start school.

This student learning activity is designed to introduce middle school students to the important and prevalent public health issue of lead poisoning through integration of an environmental health science issue with critical skills such as reading and writing. This activity is best utilized in a computer lab where students have access to enough computers for small-team use. Students, working in teacher-selected mixed-ability teams of 2, can access the bookmarked "Student View" of this activity on the Thinkport website, from which they are linked to 2 selected National Safety Council and U.S. Environmental Protection Agency websites to read, synthesize, summarize, and collaboratively write Brief Constructed Responses (BCRs) to a "research guide" concerning lead poisoning: what it is, why exposure to lead is a health risk, and how lead exposure can be reduced or prevented. Responses will be graded according to a rubric included in the research guide.

Student Directions:

Lead is a highly toxic metal that produces a range of adverse health effects, especially in young children who are exposed. Childhood lead poisoning remains a major preventable environmental health problem in the United States. Currently, over 400,000 children younger than 6 years of age in the United States have blood lead levels high enough to adversely affect their intelligence, behavior and development.

Working collaboratively with your teacher-assigned teammate, you will share a computer to

access, read, synthesize and summarize information from 2 assigned Internet sites, from the National Safety Council and the U.S. Environmental Protection Agency, to answer questions on the "Lead & Children: Toxic Exposure! Research Guide." Each team will collaborate to write brief constructed responses (BCRs) to the research guide questions using complete sentences. Answers will be graded, according to the included rubric, on correct punctuation, grammar, spelling, and sentence structure, as well as for factual accuracy.

The Students will:

- work collaboratively in teams of 2
- read information from 2 assigned Internet sources re: lead poisoning and the risks to young children from lead exposure
- synthesize and summarize the information gathered from the articles
- collaboratively write Brief Constructed Responses (BCRs) on “research guide” provided to answer the questions, " What is lead poiso

National Safety Council Lead Poisoning Fact Sheet

http://www.nsc.org/NSCDocuments_Advocacy/Fact%20Sheets/Lead-Poisoning-Fact-Sheet.pdf

EPA Lead Poisoning News An Environmental Protection Agency site which gives easily readable information about lead poisoning.

<http://www.lead-poisoning-news.com/>

Directions for student teams are included on the worksheet, "Lead & Children: Toxic Exposure! Research Guide."

Reading (K-3)	Maryland Content Standards Students examine, construct and extend the meaning of a variety of self-selected and assigned text (traditional and electronic) by applying a range of reading strategies and analytic techniques.	Maryland State Indicators 1.3.5.12 compare and contrast information in different texts (MLO.R. 2.2.2., MLO.R. 3.2.6.)
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Reading (K-3)	Maryland Content Standards Students examine, construct and extend the meaning of a variety of self-selected and assigned text (traditional and electronic) by applying a range of reading strategies and analytic techniques.	Maryland State Indicators 1.3.5.4 <i>know and use different focusing, monitoring and assessing reading strategies (e.g., finding information to support particular ideas) to comprehend text</i>
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Reading (K-3)	Maryland Content Standards Students examine, construct and extend the meaning of a variety of self-selected and assigned text (traditional and electronic) by applying a range of reading strategies and analytic techniques.	Maryland State Indicators 1.3.5.2 <i>follow simple written instructions and describe the importance of specific steps in a set of directions (MLO.R. 3.2.5.)</i>
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<p>Language (4-5)</p>	<p>Maryland Content Standards Students understand and use the structures and conventions of the English language (i.e., vocabulary, spelling, grammar, mechanics and usage) in their oral and written communications.</p>	<p>Maryland State Indicators 4.5.2.3 spell correctly: <i>assigned</i> high-frequency, content area, and complex pattern words in their own writing (MLO.L. 1.3.)</p>
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<p>Language (4-5)</p>	<p>Maryland Content Standards Students understand and use the structures and conventions of the English language (i.e., vocabulary, spelling, grammar, mechanics and usage) in their oral and written communications.</p>	<p>Maryland State Indicators 4.5.2.1 <i>identify and</i> use standard English language conventions correctly to communicate clearly, including</p> <ul style="list-style-type: none"> • sentence structure (<i>e.g., fragments, run-ons</i>) • punctuation (<i>e.g., quotation marks, apostrophes</i>) • grammar (<i>e.g., parts of speech</i>) • usage (<i>e.g., pronoun referents, properly used modifiers, irregular verbs</i>) (MLO.L. 1.1.)
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<p>Environmental Science (4-5)</p>	<p>Maryland Content Standards Students will use scientific skills and processes to explain the interactions of environmental factors (living and non-living) and analyze their impact from a local to a global perspective.</p>	<p>Maryland State Indicators 6.5.5 <i>explain that decisions influencing the environment may have benefits, drawbacks, and unexpected consequences no matter how</i></p>
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		<i>carefully the decisions are made.</i>
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Environmental Science (4-5)	Maryland Content Standards Students will use scientific skills and processes to explain the interactions of environmental factors (living and non-living) and analyze their impact from a local to a global perspective.	Maryland State Indicators 6.5.3 <i>identify the survival needs and interactions between organisms and the environment (e.g., insects depend on plant and animal material for food).</i>
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Technology research tools (Gr. 9-12)	ISTE Technology Standards 5. Technology research tools <ul style="list-style-type: none"> ○ Students use technology to locate, evaluate, and collect information from a variety of sources. ○ Students use technology tools to process data and report results. ○ Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks. 	ISTE Technology Performance Indicators Routinely and efficiently Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications, and productivity.
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- Pen/Pencil

- Computer with Internet access

Lead & Children Research Guide & Rubric ([View](#))

Activity Signature

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Program: EnviroHealth Connections