



## Background

Lead, a metal found in natural deposits, is commonly used in household plumbing materials and water service lines. The greatest exposure to lead is swallowing or breathing in lead paint chips and dust.

But lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure to lead in drinking water above the action level can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. In adults, it can cause increases in blood pressure. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Lead is rarely found in source water, but enters tap water through corrosion of plumbing materials. Homes built before 1986 are more likely to have lead pipes, fixtures and solder. However, new homes are also at risk: even legally "lead-free" plumbing may contain up to 8 percent lead. The most common problem is with brass or chrome-plated brass faucets and fixtures which can leach significant amounts of lead into the water, especially hot water.

Source: EPA

## Designing Your Science Experiment

When designing your experiment you want to make sure you follow the **scientific method**.

The scientific method involves the following steps:

- Observation - observe something that interests you
- Question - formulate a question about what you have observed
- Hypothesis - prediction or educated guess on what you expect will happen
- Procedure/Materials - develop an experimental procedure to test your hypothesis and gather all materials needed to perform the experiment
- Perform Experiment/Record Data - do the experiment and record all data
- Results - summarize the results of the science experiment
- Conclusion - draw conclusions about your question and hypothesis based on your results

## Sampling

Technically, any outlet for potable water is a potential source of drinking water. Realistically, though, some outlets are regularly used by students and staff for drinking, cooking, or even making coffee. With a limited number of tests, you may want to prioritize sampling sites based on potential use and risk.

### **EPA recommends the following sites as priority sites:**

#### *high priority*

- drinking fountains, both bubbler and cooler style
- kitchen sinks
- home economic rooms sinks
- teacher's lounge sinks, nurses office sink
- classroom sinks in special education classrooms
- any sink known to be or visibly used for consumption (e.g. coffee maker or cups are nearby)

#### *medium priority*

- classroom sinks \*potential for cups used for drinking, classroom cooking projects)
- bathroom faucets (yes, many kids drink from these!)

#### *low priority*

- utility sinks and hose attachments, unless used to fill water jugs.

### **Helpful links:**

1. <http://water.epa.gov/drink/info/lead/index.cfm>
2. <http://www.cdc.gov/healthywater/drinking/private/wells/disease/lead.html>
3. <http://en.wikipedia.org/wiki/Immunoassay>
4. <http://www.nbclosangeles.com/news/local-beat/Lead-Still-Not-Removed-from-LAUSD-Drinking-Fountains-62938792.html>
5. <http://www.freedrinkingwater.com/water-news/water-contamination-lead-schools.htm>
6. [http://www.sciencenews.org/view/generic/id/40291/title/Science\\_%2B\\_the\\_Public\\_\\_T\\_oxic\\_Lead\\_Watch\\_Out\\_for\\_Schools](http://www.sciencenews.org/view/generic/id/40291/title/Science_%2B_the_Public__T_oxic_Lead_Watch_Out_for_Schools)
7. <http://www.salon.com/news/feature/2006/11/27/lead>