

# Lead and Mercury

The elements that you could prevent

## Who are you and what is your purpose here?

We are the brainy scientists that know how to solve this problem in Howard County. We are Ben, Trey, Abhi, Shripad, and Josh. We have reunited to make a statement to the Government of Howard County. We have come together to create a proposal. A proposal that could potentially change the world. We have made a the best possible solution for getting rid of these pollutants. The pollutants we are getting rid of is Lead and Mercury.

1 [Complete your work plan first!](#)

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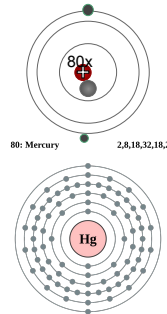
## Lead and Mercury

Lead is a naturally occurring element found in small amounts in the earth's crust. It can be very toxic while Mercury is a silver-colored metallic element that is toxic to living organisms.

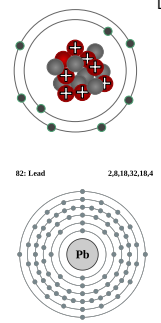


## The Chemistry of Mercury and Lead

Mercury



Lead



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## Where does Mercury and Lead come from? How is it produced?

**Global Sources Mercury:** Mercury is usually produced in Spain and delivered to different countries and its natural location is in the very bottoms of volcanoes.

**Lead:** Lead is usually obtained from the ores galena (PbS), anglesite (PbSO<sub>4</sub>), cerussite (PbCO<sub>3</sub>) and minium (Pb<sub>3</sub>O<sub>4</sub>).

### Local Sources

**Mercury:** Mercury is in things at home like thermometers, fluorescent lamps and button batteries.

Lead is usually found in the point of a pencil and in some rocks in the edge of a mountain.

Source: [www.rsc.org](http://www.rsc.org)

## How do our local weather and climate help Mercury and Lead to get into our air?

### Local Climate and Weather Patterns

The local weather pattern for this time is very cold days with light snowfall in the future and the climate is usually hot and humid during the summer and cool during the winter.

### Prevailing Wind Patterns

The prevailing winds usually come in from the Appalachian mountain range with the cold air bringing in a lot of pollutants because they travel in the cool air and preserve themselves from the coal plants and etcetera.

5 Source: [www.epa.gov](http://www.epa.gov)

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## How does our geography help Lead and Mercury to get into our air?

**Mercury**  
Since Mercury has the ability to change forms it can get into the air by evaporation and through incinerator emissions.

**Lead**  
Lead comes from fossil fuels and can also be found in soil.

## Why is Lead and Mercury a problem?

### Human Effects (health, economical factors, etc.)

Mercury can affect humans with symptoms of coughing, shortness of breath, chest pain, nausea, vomiting, diarrhea, fever, and bronchitis.

Lead can affect humans with symptoms of behavioral problems, decrease IQ, seizures, and more.

### Environmental Effects

Mercury can affect aquatic life.

Lead can mix with the dust and over time the soil and things that the lead dust settles get contaminated and people could get sick if they roused the dust get back into the air

## Lead and Mercury

If our community can survey if any lead and mercury have been getting into the air in certain place (generally smokestacks or lead smelters) and can try and prevent it from spreading. Some advantages are that it can prevent for it to increase lead and mercury in the air but a disadvantage is that the lead and mercury already in the air is really difficult to remove. These changes will have a significant effect on the pollution levels of lead and mercury because it will not be able to spread and reach other pockets of air to contaminant. This plan will cost money but more patience since the results won't come straight away. It important when adopting this, to be serious about following the rules since this could help your child to be safe and breathing

## Our Community could survey the area to see if a major sources of mercury and lead is coming from

If our community can survey if any lead poisoning and mercury poisoning have been happening in certain place and can try and prevent it from spreading, then the amount of people who get affected by lead poisoning and affected by mercury poisoning is going to decrease because if we know what causes these things, finding a way to prevent and if already poisoned, on how to help get rid of Lead and Mercury poisoning would be really easy

## People need to stop using lead using facilities and renovate or move out of houses/apartments from 1978 or older

### Evidence:

- Reports have showed that the most common way to get lead poisoning is from indoors, People who get lead poisoning usually live in shelters built in early 1978 or older since the act to get rid of lead in paint was passed in 1978. Reports so that also a big factor of how lead gets into the air are people who work in lead smelters.

### Reasoning:

- Lead poisoning can get to you if the paint starts to chip away and the lead paint particles are mixed with the dust flying around also they can get to you if you are near a place where it can be inhalable , then if you inhale it ,you are going to find yourself in serious danger

## People should use filters on top of smokestacks to prevent mercury emissions from getting out and to prevent people from eating fish that fresh caught

### Evidence:

- Reports say that people get mercury in their systems through diet ( mainly from fish), absorption, and inhalation of toxic elemental mercury fumes. According to Maryland Department of the Environment, the best way to get rid of mercury is to prevent it, since it is difficult to remove

### Reasoning:

- If people could conserve electricity for which power plants burn gases and coals to produce electricity which coals naturally have mercury. This would reduce the amount of mercury that gets into the air and if people as a consumer could not buy anything that includes mercury, then people would have prevented the chance of mercury poisoning

## Argument Three (if needed)

### Evidence:

### Reasoning:

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## In Summary:

To sum it all up, if we can find out where lead and mercury poisoning has been happening in our community. We can start by checking for shelters painted before 1978 because there was lead in paint before 1978. And if we add more filters on top of smokestacks and cutback on eating too much products that can possibly have mercury poisoning then we can prevent mercury poisoning instead of remove mercury since it is very hard to remove it. If we can do these things we shouldn't have to worry about lead or mercury poisoning anymore.

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## Sources Used

- [Air Quality](#) by Janet L. Kolodner, It's About Time, ©2010.
- "Lead." *American Lung Association*, [www.lung.org/clean-air/at-home/indoor-air-pollutants/lead](http://www.lung.org/clean-air/at-home/indoor-air-pollutants/lead).
- "Reduce Mercury in the Environment and Protect Your Family's Health." *Maryland Department of the Environment*, [mde.state.md.us/programs/Marylander/PublicHealth/Pages/mercury\\_fact\\_sheet.aspx](http://mde.state.md.us/programs/Marylander/PublicHealth/Pages/mercury_fact_sheet.aspx).
- <https://www.epa.gov/lead/learn-about-lead>
- <https://mde.maryland.gov/programs/land/RecyclingandOperationsprogram/Pages/mercuryinfo.aspx>
- <https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how>
- <https://www.google.com/>

## Work Plan

**Ben**  
Responsibilities/Tasks:7  
-9

**Shripad**  
Responsibilities/Tasks:4  
-6

**Abhi**  
Responsibilities/Tasks:1  
0-12

**Josh and Trey**  
Responsibilities/Tasks:T  
rey: 1-3  
Josh:13-15

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