Water

METHYLMERCURY IN AQUATIC FOOD WEBS

Mercury is a silvery metal (like aluminium) that is in a liquid form (like silvery water) at room temperature. If you drop mercury onto a table it will stay in the shape of a ball rather than becoming flat like water. Mercury can sometimes be seen inside a thermometer. Mercury is a toxin which slowly evaporates. If you spill mercury or keep it somewhere loose (out of a thermometer) it can contaminate the air you breathe. If you throw a mercury thermometer into the garbage, it will end up in our landfills (garbage dumps) where the mercury can escape and end up in the soil or water.

In the lakes and rivers, bacteria change mercury to a more poisonous form called methylmercury. Methylmercury will work its way up the food chain into fish. Once in the food chain the levels of a toxin like methylmercury keep collecting in greater and greater amounts.

Children are more sensitive to mercury poisoning than adults and more likely to be seriously affected from exposure to mercury vapour, (the gas produced from evaporated mercury). Mercury poisoning can affect the brain, spinal cord, kidneys and liver.

More recently, people have become aware of the problems with using mercury and in many cases alternative technologies have been developed. Also, people are making sure to properly dispose of mercury and mercury related products.

HOW MUCH MERCURY?

Let's say for example that each piece of plant material has <u>one</u> microscopic drop of methylmercury…

<u>1)</u> If one insect needs 25 pieces of plant material to live, how many drops of methylmercury will end up in its body? (Show Work!)

<u>2)</u> If one small fish needs 10 insects to live, how many drops of methylmercury will end up in its body? (Show Work!)

3) If a larger fish needs 5 small fish to live, how many drops of methylmercury will end up in its body? (Show Work!)

4) If we (humans) eat 1 big fish—3 days in a row—how many drops of methylmercury will end up in our body? (Show Work!)

5) We know that methylmercury makes living things sick. The more methylmercury in the living organism, the more sick it would get. Which organism (from #1-4) would be the most affected by the chemical?

6) This scenario demonstrates something called "BIOMAGNIFICATION". In your own words, what do you think Biomagnification means?

Additional: Fish dissection activity

Visit http://dvbiology.org/biologyweb/perchdissection.pdf to access an activity that leads students through a perch dissection lab. Before the lab, students will need to research fihs anatomies to familiarize with fish organs and their functions.