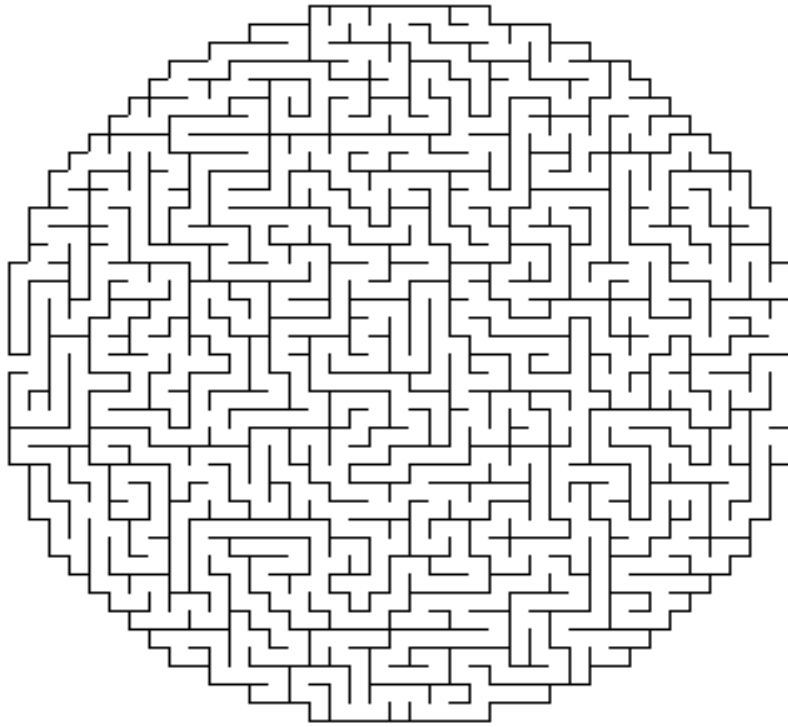


# MERCURY

WHEN FUN TURNS INTO DANGER



# Help Mike Get To The Hospital!



## Author's Cryptogram!

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
X			Y												Ψ										

$\frac{E}{\Pi Y}$   $\frac{O E}{M\Phi H\Psi\theta\Theta Y A}$ ,  $\frac{A E}{I X T Y}$   $\frac{A E O}{\Delta X\theta Y}$   $\frac{O}{\Psi H}$   $\frac{O}{K\Psi\Omega\theta}$   $\frac{E A}{\Sigma Y X Z I \Sigma}$ ,  $\frac{A O}{X E \Psi M A}$   $\frac{E}{\Theta Y\theta\Delta\Omega\theta K}$

One early morning the children prepared for a long day at school...

Ann, have you seen my necklace I brought back from Mexico?



No! And I'm not gonna help you look for it. Your necklace has mercury. It's dangerous and it can make you sick.

Ann, are you jealous? Maybe you should've bought one for yourself. Oh boy! Here it is. I found it, with my name engraved and...

Oh! No!

You idiot!

Now look what you've done! There's mercury all over the floor!



Calm down, Ann! I'll get the vacuum cleaner.

No! That'll make it even worse by spreading the mercury vapors around the house. We can't use a broom either!

OK then! I'll clean it up with a rag.



**Don't touch it Tommy! Mercury can be absorbed through the skin.**

**Gee, Ann!**  
How can we clean it up then!?

Very **carefully**, Tommy. I've been reading about mercury for a while now. This is some serious stuff. **Open the windows and doors to air out the room.**

Get an index card, some gloves, the plastic dustpan and a plastic jar with a screw on lid.

Aye, aye, sir!!

With gloves on, scoop up the mercury and put it in the jar.

**OK!** Then can we throw it away?

**Ann**, what are you doing with this!?!? Do you know this is **mercury**? It's very **dangerous** to your health. Did you touch it?

**Nope!**

I think I will take it to my science teacher. I'm sure she'll know what to do.

No, Ms. Lee. We put on gloves and used an index card to scoop it off the floor. Everything that was spilled has been collected in this jar. It didn't even touch our shoes or clothes.

This is not good. I'm **calling 911** right away, they will contact **the fire department, the local poison control center or the public health board**. I recommend that your parents buy sulfur powder at the local garden store. They should pour the powder over the area where the mercury was spilled. If the powder turns brown, then mercury is still present; if it doesn't turn brown, then it's OK.

**Remember—mercury can slip into small cracks or fissures between the tiles.**

Meanwhile, not too far away...

**Hurry up Mike!** We're gonna be late to class.

**Chill out, Bob!**  
We still have time.  
Come here, I want to show you something.

**Let's check this out!**

**A tool shed!!** You wanna check out an old tool shed!!?

**Aww man!!** Let's go.  
It's just a lousy tool shed; nothing cool is in here!

How do you know? Let's look around for a while. I'll bet there's some really cool stuff in here.

Let's look behind these boxes... **Hey! What's this? Check this out!**



Wow! What's that!?! Let me see!!

Hold on, Dude!  
It's mine.

Wow! Check it out! It's shiny and it feels like liquid.

Cool! Give me some.



No way!  
I found it.

Back in the classroom...

What should we do next, teacher?



Nothing for now. The custodian took the jar and placed it in a locked storage room.

Ms. Lee, I was reading that pregnant women should be careful around mercury ... and with the baby coming and all...



Ann, I'm impressed!! Pregnant women and children should avoid eating lake trout, walleye and northern pike. They should also limit or avoid eating fatty fish which may contain high levels of PCB's such as catfish and carp. Pregnant women or women who are nursing a baby should limit their consumption of fresh water fish, caught by friends or family to 1 meal per week.

For adults 1 meal is 6 ounces of cooked fish or 8 ounces of uncooked fish. For a young child 1 meal is 2 ounces of cooked fish or 3 ounces of uncooked fish.

Salt water fish that should be avoided by pregnant women and children are shark, sword fish, king mackerel and tile fish.

Here's an informative poster explaining how mercury affects you:

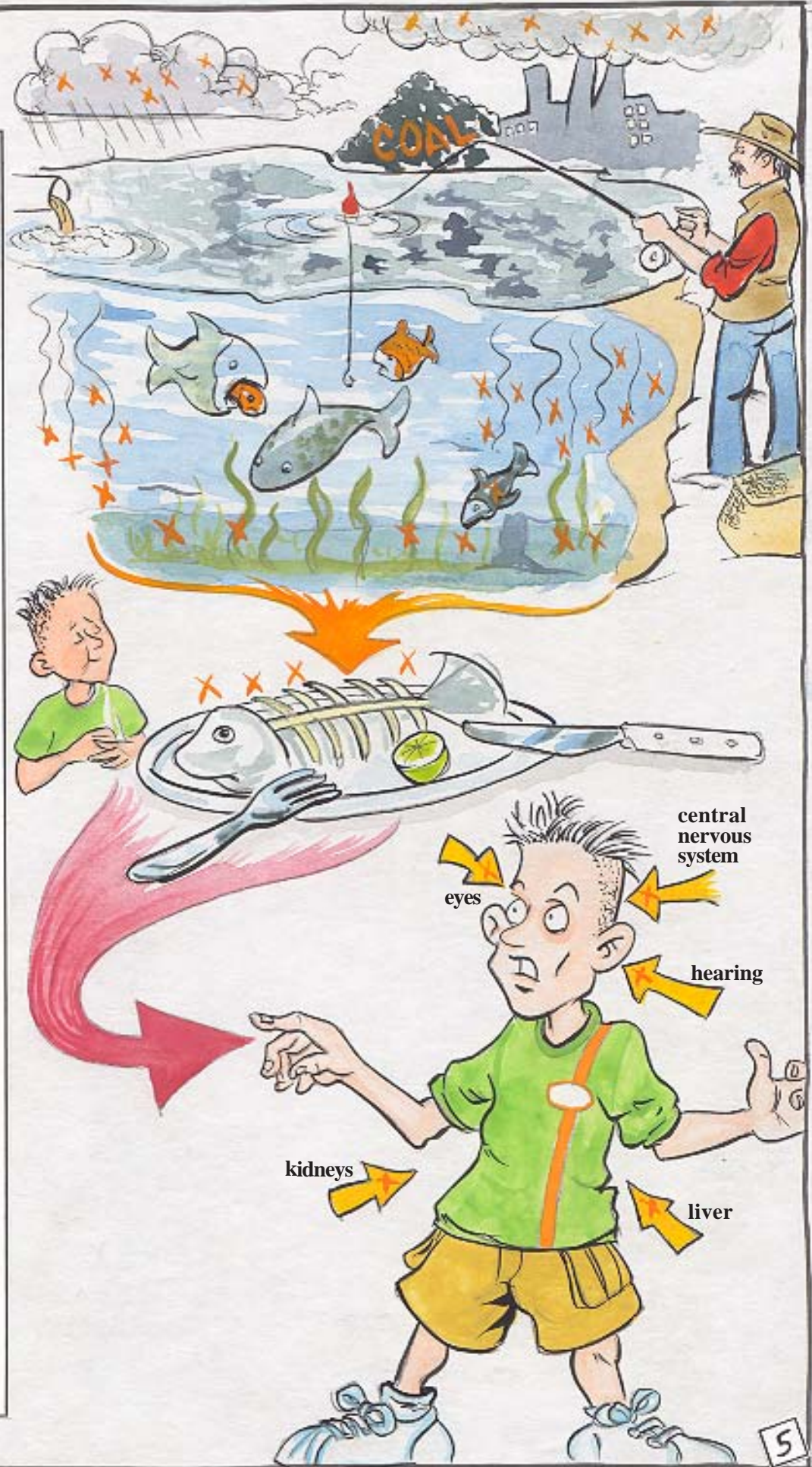
Some ways that **mercury** can become **airborne** are when coal or oil are burned as fuel in power plants, when volcanos erupt or when forests burn. Once in the air, mercury can fall onto the land through rain or through the natural pulling force of gravity. Erosion or rainfall can carry the mercury into **lakes, rivers and oceans**. Once in the water, mercury will settle onto the bottom. The **mercury eventually contaminates plankton, which are tiny organisms in the water that fish eat**. When the fish eat the plankton, the **mercury in the plankton is passed on to the fish**. Over time, as fish eat more plankton more mercury accumulates in those fish. People, in turn, can eat some of those contaminated fish. And the more contaminated fish that people eat, the more mercury accumulates in their bodies. Over time, those people may suffer from mercury poisoning.

**Note:** Don't stop eating fish. It is a good source of protein and is low in saturated fat. You can still get the benefits of eating fish by wisely choosing safer types of fish, safer places to catch fish and using moderation in how much you eat.

**How does mercury affect you?**

Mercury poisoning can cause damage to the central nervous system, the kidneys and liver, and badly affect a child's development. Ultimately, it can even lead to death.

**Remember:** There is no method of cooking or cleaning fish that will reduce the amount of mercury.



While Ms. Lee is talking about mercury, Mike and Bobby are now at school...

C'mon Mike! Give me some! You have plenty in the jar.

**Nope!**  
I have plans for this stuff and I need every drop of it.

So I'll just put this away in my locker. Let's go, class has started.

**Hi Mike!  
Hi Bobby!** Boy, do you guys look guilty! What are you guys up to?

**Nothing Ann! Really!**  
But soon, I'm gonna be famous. I've discovered this cool mystery liquid that you can do a lot of things with.

**Ahhh! Don't be so nosy, Ann!!!** At the right time you'll know what I'm up to. And Bobby, make sure you keep your mouth shut and don't say a word to anyone. Now, if you'll excuse me, this genius can no longer be bothered because he has lots of work to do in his lab.

**You?  
Famous?!**

**That's a joke!!**  
What are you talking about?

Tommy and Ann did not pay too much attention to Mike's fantastic dreams because they were deep in thought about what they had just learned about mercury.

I didn't know how serious mercury contamination could be.

We need to **educate** people about this substance.

What are you guys talking about?

**Please Ann! Change the subject!**

Mercury, Bobby! A material that...

I am more interested in hearing about Mike's experiment. Now that is something much more exciting.

**Sorry!!! I'm just trying to...**

**You're so boring Ann, I'm outta here!!!**

Mike's mind was in the clouds. He had something no one else did- **mercury!!!!**

Without knowing it was mercury, he was endangering his health by...

shining copper coins and other copper objects with mercury...

...playing with it...

leaving mercury exposed to the air to see if evaporation occurs...

...smelling it!!

Time passed and Mike became bored with his mystery liquid. So he decided to take it to school.

Hi Mike!  
What's that?

My mystery liquid! It can transform copper into silver, which, of course, means I'll be rich.



Although the children were very excited about Mike's discovery, they did notice some **changes in his behavior.**

His handwriting was **no longer legible.**

He was **weak** and he **wobbled** while **he** walked.

He had **difficulty hearing** and his **speech** became **slurred.**

mss... bsss...  
bllhh...  
phht



During a test, he didn't answer any of the questions. **He even couldn't remember** what he had for breakfast.

No one knew that Mike had brought mercury to school until Ann and Tommy realized to their horror that mercury was everywhere.

What are you doing?  
Don't you know the dangers of mercury?!!

Quick, get Ms. Lee!

Is this mercury?!





Mike's been playing with this stuff for two weeks. It's all over the school now.

There's mercury everywhere!!!

Mike? Who's Mike? Why are they concerned about Mike?

Well, the problem is very serious! Mercury seems to be everywhere and some kids have had contact with it. I'm really concerned about Mike.

Shortly after, poison control center personnel entered the school to investigate who had come in contact with mercury...



Where did you say you found the mercury?

Why? Is it dangerous? I don't feel a thing.

The effects aren't immediate. It depends on the amount of mercury and how close you came into contact with it.

We have to close the school for a few days.

Not everyone was happy that school was temporarily closing.



Wow! Is mercury so dangerous that the school has to be closed down?

Gee! I'm glad Mike was too selfish to share his mercury with me.

I hope Mike is OK.

I just heard Mike's been taken to the hospital for observation.

What can we do?

What I've always said:  
**learn about the dangers of mercury!**

There you go again, Ann!



It's true. If Mike and Bobby had known the dangers of mercury, this never would have happened...  
**remember that knowledge is power.**



Well, Ann, since you already know so much, where do you think we should begin?

There's lots of information in the library and on the internet.



That's right! You all should do research and present your findings when school re-opens.

**Yes ma'am!!**  
Let's get to work!!



<http://www.glrppr.org>  
Great Lakes Regional Pollution  
Prevention Roundtable

**School re-opens...**

OK class. Who wants to present first?



I learned that mercury, also known as quicksilver, is a naturally occurring element. Because it is an element, its properties never break down. It can be found in a mineral named cinnabar and in small amounts in oceans, rocks and soil. It becomes airborne when rocks break down, volcanoes erupt, and soil decomposes. It then circulates and is redistributed throughout the environment.



I found out that mercury, aside from its toxic effects, has been very useful for industrial purposes. It has been used for hundreds of years. For example, it's useful for controlling mildew in paints, killing weeds, and is also used in hospital machinery. It is currently used by some dentists in some of their procedures.



In the 1800's, hat factories used mercury. As a result, almost all their workers had strange and unpredictable behavior.

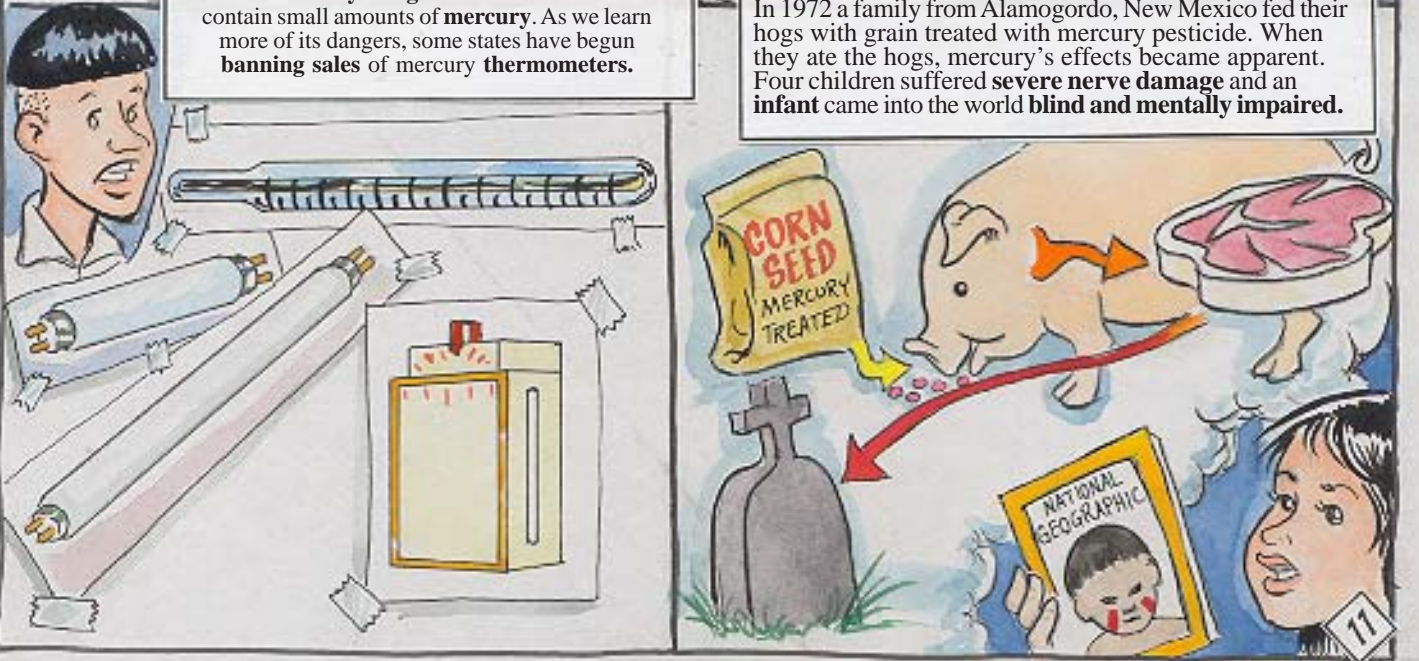
When Lewis Carroll wrote "Alice's Adventures in Wonderland", he introduced a character named the "Mad Hatter". The Mad Hatter's behavior was typical among the hat factory workers in England at that time because many suffered from mercury poisoning.

There's a long history of **folk remedies** that use mercury. People don't know its effects and it is **still used today**.



I found that **many things around the house** could contain small amounts of **mercury**. As we learn more of its dangers, some states have begun **banning sales** of mercury **thermometers**.

In 1972 a family from Alamogordo, New Mexico fed their hogs with grain treated with mercury pesticide. When they ate the hogs, mercury's effects became apparent. Four children suffered **severe nerve damage** and an **infant** came into the world **blind and mentally impaired**.



After hearing this story, the class became silent. Everybody was thinking about Mike...



Why is everyone so quiet?  
I'm still here!!



**MIKE!!!!!!**  
Are you OK!?



**YEAH!** I am under medical observation and they haven't found anything wrong. I feel fine now that I've had a week's vacation.



And the **symptoms** you had?



Clearly, Mike's symptoms could have stemmed from many things. That is why it is important that **medical doctors should do the evaluation.** Only they can determine whether you have been contaminated.



The doctor said that extreme exhaustion and lack of sleep gave me **symptoms similar** to mercury poisoning...



You've got to call 911. They'll call the fire department, the local poison control center or the public health board. They'll know what to do.

None of this would have happened if I had known more about mercury. The more you know, the better off you are.



Now that we know about mercury, it's **our responsibility** to make sure we **educate those who don't know** about its dangers.



What should the rest of us do if we find mercury in our house?





So class, I've got to congratulate all of you for a job well done.



We've all learned about mercury.



And Mike, you qualify as an expert!

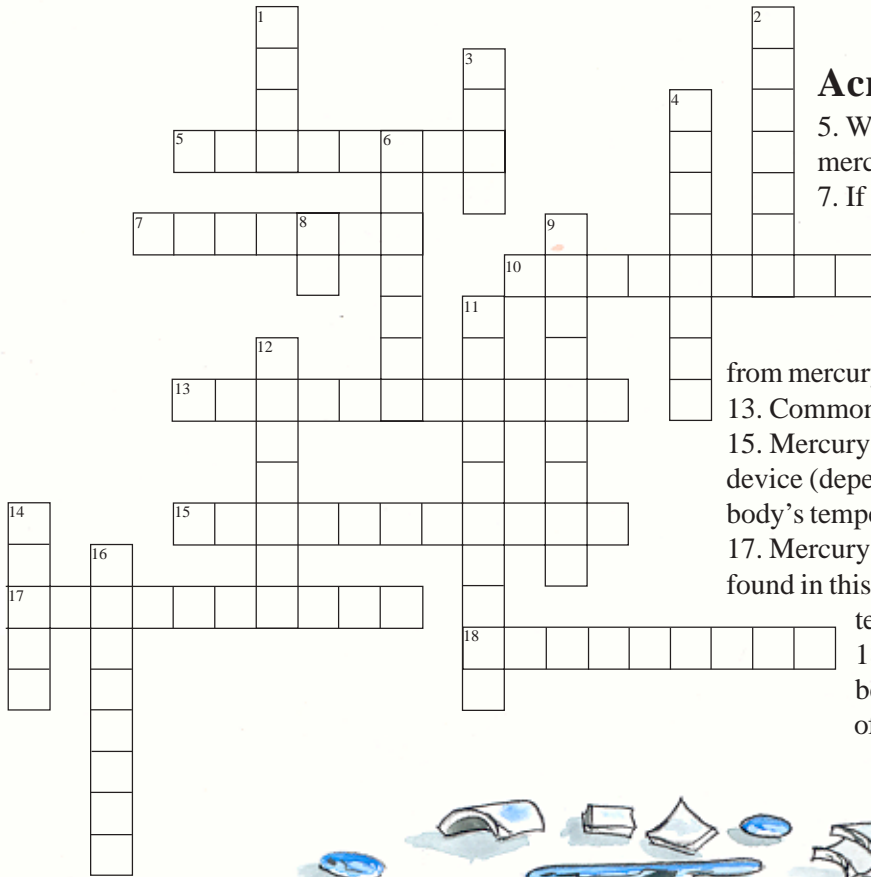
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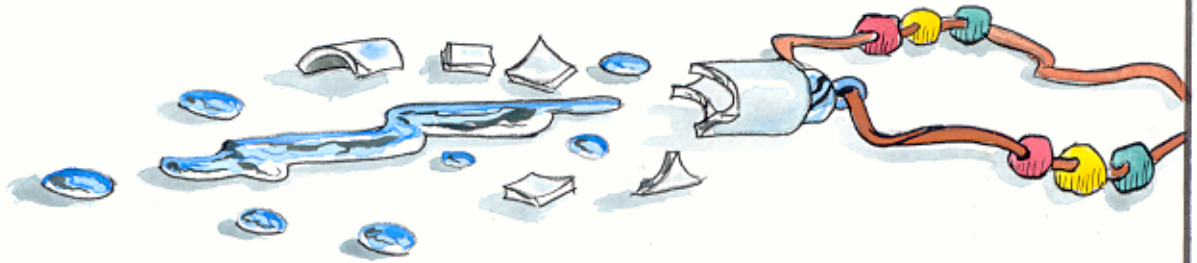


This comic was printed with soy ink on recycled chlorine-free paper.



**Across**

- 5. When these natural phenomena erupt, mercury is emitted into the air.
- 7. If you find mercury in your school, who is the first person you should inform?
- 10. This famous character from "Alice in Wonderland" suffered from mercury poisoning.
- 13. Common nickname for mercury.
- 15. Mercury can sometimes be found in this device (depends on type) that measures your body's temperature.
- 17. Mercury can also (depending on type) be found in this device that controls the temperature in your home or school.
- 18. In this profession, mercury has been very useful during the process of filling cavities.



**Down**

- 1. When burned, this substance can release mercury. It is sometimes used as fuel to make electricity.
- 2. Mercury is a naturally-occurring \_\_\_\_\_.
- 3. When in water, mercury can contaminate plankton, which in turn, can contaminate \_\_\_\_\_.
- 4. Mercury can often be found in this mineral.
- 6. Mercury affects your Central \_\_\_\_\_ System, which consists of your brain and spinal cord.
- 8. Scientific symbol for mercury.
- 9. Mercury can be found in these units that are used to power radios, watches, games, etc. when an electrical outlet is not available.
- 11. Mercury is sometimes used by some people as a substitute for conventional medicine. This is usually known as a \_\_\_\_\_.
- 12. Mercury poisoning will affect your \_\_\_\_\_, which are considered the filters of your body.
- 14. Mercury is considered a heavy \_\_\_\_\_.
- 16. What type of jewelry, mainly coming from Mexico, sometimes contains mercury?

- Answers:
- 1. **Hg**-scientific symbol for mercury.
  - 2. **element**-Mercury is a naturally-occurring \_\_\_\_\_.
  - 3. **fish**-When in water, mercury can contaminate plankton, which in turn, can contaminate \_\_\_\_\_.
  - 4. **cinababar**-Mercury can often be found in this mineral.
  - 5. **volcanoes**-When these natural phenomena erupt, mercury is emitted into the air.
  - 6. **Nervous**-Mercury affects your Central \_\_\_\_\_ System, which consists of your brain and spinal cord.
  - 7. **teacher**-If you find mercury in your school, who is the first person you should inform?
  - 8. **quicksilver**-Common nickname for mercury.
  - 9. **batteries**-Mercury can be found in these units that are used to power radios, watches, games, etc. when an electrical outlet is not available.
  - 10. **Mad Hatter**-This famous character from "Alice in Wonderland" suffered from mercury poisoning.
  - 11. **folkremedy**-Mercury is sometimes used by some people as a substitute for conventional medicine. This is usually known as a \_\_\_\_\_.
  - 12. **kidneys**-Mercury poisoning will affect your \_\_\_\_\_, which are considered the filters of your body.
  - 13. **quicksilver**-Common nickname for mercury.
  - 14. **metal**-Mercury is considered a heavy \_\_\_\_\_.
  - 15. **thermometer**-Mercury can sometimes be found in this device (depends on type) that measures your body's temperature.
  - 16. **necklace**-What type of jewelry, mainly coming from Mexico, sometimes contains mercury?
  - 17. **thermostat**-Mercury can also (depending on type) be found in this device that controls the temperature in your home or school.
  - 18. **dentistry**-In this profession, mercury has been very useful during the process of filling cavities.