

2022 WATER'S WORTH IT ESSAY CONTEST WINNERS

The Central States Water Environment Association recently held its 2022 Water's Worth It Essay Contest in Illinois and Wisconsin. Applicants in grade 6 through 8 submitted either a creative writing essay or research essay on Optimism in the Face of a Global Water Crisis. Thanks to all who participated this year and congratulations on the winners in each state.



WISCONSIN

The Wisconsin Public Education & Awareness Committee would like to congratulate the 2022 Water's Worth It essay contest winners for Wisconsin – Hazel Mittag, and Caden Downing! The committee would like to give a big shout out to Stephanie Cioni in Illinois, for her efforts to create this great essay contest for middle schoolers, and for Stephanie's spirit of collaboration with Wisconsin! #StrongerTogether. Also, a shout out to Hiroko Yoshida and her company Centrisys, for continuing to sponsor this wonderful contest. This year's essay topic was The Human Water Cycle, with both a research prompt, and a creative writing prompt.



Hazel Mittag, Creative Writing Prompt Winner
Essay: From Hawaii to Lake Michigan to Your Faucet

Hazel Mittag is 12 years old and from Glendale, WI. She is homeschooled and her favorite subject is violin. She enjoys sketching, painting, dancing at her church and gymnastics among many other things. Hazel is grateful for water because it's refreshing, cleansing and amazing to swim in.

HAZEL'S ESSAY

Aloha! My name is Talia. I've been around ever since God created Earth. I've been everywhere... Well, except for Lake Michigan.

I love to travel but, every time I do, I can't take my more... stationary friends with me, like Killi, the microplankton, and Willie, the humpback whale. Almost as if on cue, Willie swims up in front of me and uses his tail to propel me up to the surface for today's journey.

I just have time to shout "bye" to all my friends before I evaporate, climbing higher. I swivel around as I become part of a cloud.

"Excuse me?" I ask the nearest water droplet, "What direction is the wind pushing us?"

"Northeast at 100 knots, we're in a cirrus cloud."

"Thank you," I reply. Now it's time to enjoy the ride.

SPLASH!

Before I can adjust to my surroundings,

I'm engulfed by a dark pipe. "Great," I grumble, "I was hoping to avoid this, but of COURSE we're dropped near the intake pipe. Hopefully, I'm not used to clean a toilet."

"We're in the Milwaukee waterworks!" someone shouts. A gas is added to our group, ozone.

Well, at least this will get rid of the pest over there. The disease-causing microbes are always annoying, but this one seems to be extra irksome. Mercifully, a molecule of ozone knocks him out and drags him away.

Ugh, great. Alum is being added. They round up all the dead organics and clump them together... right under me. GROSS. Thankfully we'll be getting rid of them soon.

Next, we move to a settling tank where all the dead organics leave – whew, they were really starting to stink up the place.

Here comes my faaaaaaavorite part, we have to move through TWO FEET of

Anthracite coal to get rid of the 'larger' leftover particles. Then we move through a foot of silica sand and become BFFs with chlorine. Lastly, fluoride is added to help humans' teeth.

Now I can just have fun. These pipes are even a better ride than the Northern Equatorial current back home.

"Hey, water," Fluoride says. "You know how humans purposely add us, it's because they value us way more than you..." His next words were drowned out by a two-foot drop. We have finally reached our destination! And it looks like we're in a babysitter's house. Ewww... is that ketchup?

"Oh! We're being used to wash dishes." I exclaim. I look over at Fluoride's shocked face. "So important now?" I shoot at him.

The next part of our journey consists of a maze of sewers.

There's human waste, spit, condiments, toothpaste.... YUCK.


Chlorine and Fluoride start grumbling about inconsiderate humans and how they should treat valuable chemicals like them. They sound ridiculous, and before we know it, we're at the water reclamation facility about to get cleaned. Hallelujah!

This part of the journey is easy. A screw-shaped pump brings us up from the sewers. Then we cascade down through a screen that removes the larger debris. Clarification then skims oil and grease from the top while solids sink to

the bottom. Phew, it is getting stinky. After that, the water runs down small pipes and billions of bacteria are added, oxygen keeps the bacteria alive while they eat the solids, and the dead microbes sink below us and become Milorganite. Finally, we spill over the edge of the tank, clean.

Today's journey was different than my expectations. I'd hoped to see more of Lake Michigan, but it is amazing to see how humans have carefully planned out their water treatment, from adding fluoride to creating a machine that can skim oil from the top of us.

I would change the way we're used for future adventures. We run down people's backs when they take showers, they drink us up, and so on, which is fine, except that as payment, they throw garbage into our oceans and toxic waste pollutes the ground of landfills when we rain and drains down into rivers, lakes, and oceans. That part makes me sad. You only really clean us when YOU need us, not when we and the inhabitants of the oceans need you.

This is Talia and her Michigan adventure, out. 



WISCONSIN



Caden Downing, Research Prompt Winner
Essay: Madison's Human Water Cycle

Caden Downing will be a seventh grader at Our Lady Queen of Peace School in Madison, WI, beginning in the fall of 2022. Caden has always had an appreciation for water, dating back to third grade when he completed an inventor project on Dr. James Barnard, who discovered the enhanced biological phosphorus removal process. Outside of school, Caden loves skiing, mountain biking, and reading.

CADEN'S ESSAY

The water cycle in the city of Madison is a very complex system in which water from lakes in the ground is pumped into a home, used by people, and then cleaned and returned to a river. In this essay I will explain the steps in this cycle and how they work and how people are interconnected with this cycle.

Water is first pumped out of the ground by wells that are around 1179 feet deep. There are 22 wells for the city of Madison. The city of Madison gets the water from underground lakes called an aquifer. We do not clean this water because the soil cleans the water. It doesn't even let microorganisms through.


This water is then pumped into a water tower. There are 21 water towers and the largest one holds 1.3 million gallons. Water towers are used because they don't need pumps to get water to your house; they use gravity. This makes the whole process much more sustainable. The water forced by gravity is then transported to your house by

870 miles of pipes. These 26 million gallons per day water then gets used for everything in life.

When you flush your toilet or drain your sink this water is sent to a wastewater treatment plant by 790 miles of pipes, 2000 structures and 29 pump stations. These pipes keep our waste water from seeping into our aquifers. At the wastewater treatment plant, the water is treated by a series of treatment processes. For the Nine Springs Wastewater Treatment Plant (the treatment plant for Madison) the following treatment processes are used: screening, grit removal, primary treatment, activated sludge, and ultraviolet disinfection, the solids that are removed from the water are treated with anaerobic digestion anaerobic digestion produces fertilizer and clean energy which is used to power the treatment plant.

After being treated, this clean water is put in a pipeline, which discharges the water in Bad Fish Creek.

This benefits the creek because the fish are better off in clean water. Bad fish creek is a tributary to the Mississippi so the water people in New Orleans is the same water we drink in Madison.

All the service workers in Madison are important for any of this to happen. They have the most important jobs in our town and we would all struggle without them. Some work at the wells, pumps and water towers scattered around the city. These workers ensure that everyone gets the water. Others work on the 1660 miles of pipes spread around the city without them we would have major sewer and water problems. Others work at the treatment plants and they help our environment thrive during stay healthy. 

Sources
www.dnr.wi.gov
www.cityofmadison.com
www.madsewer.org



ILLINOIS



Rishima Mukherjee, Research Prompt Winner (Northern Illinois)

Essay: Humanity's Most Important Resource

Rishima, 13 years old and is from Aurora, IL, where her favorite subject in school is English Language Arts. In her free time, Rishima enjoys playing badminton, dancing, writing poetry, and reading (her favorite genre is historical fiction or YA fiction). Aware of the crisis and problems of clean drinking water across the world, Rishima is very precautious of the water she drinks. Moreover, her favorite thing about water is its importance in the world: Not only is it essential for the human body, but research and experiments also have shown that water can be used as an energy source. The variety of factors and influences water has in the world amazes Rishima because it can lead to better, sustainable planet.

RISHIMA'S ESSAY

Citizens of Aurora have the privilege of safe drinking water. But the true question is: is it really safe? Aurora is one of the three cities in the US with three proper treatment plants for their water supply, resulting in the award of Partnership for Safe Water's Excellence in Water Treatment. The community's well-being is on the line when it comes to safe drinking water because the quality of the city's water impacts the health of its citizens. Contaminated water exposes people to life-threatening waterborne diseases, classified as dangerous microbes. For citizens to feel protected in the water they are drinking, citizens need to understand the process of how water reaches their homes as well as the city of Aurora to maintain its high standards of water quality.


The city has several sources of its water supply, including the Fox Valley River, deep wells, and shallow wells. From these general origins, water is then mixed to create a blend of 40% well water and 60% surface water that can also pick up natural or radioactive materials in its mixture. It is then filtered and pumped into storage tanks, where it links to underground water mains. While water mains are the hub/trunk of a city's water, water pipes are like the roots, connected directly to wells or boreholes, that provide water to houses. When people open their taps, pressure in the pipes pushes the water out since the city's

water tanks are placed at an elevation which creates hydrostatic pressure and gravity for distribution to the pipes.

While the flow and transportation of water from the Fox Valley River to people's homes aren't complicated, the labyrinthine processes in-between are. Water from wells and Fox Valley River are sent to a larger reservoir, where it is then lime-softened, fluoridated, filtered, disinfected, and discharged. A 2020 water report reviews that lead, copper, regulated contaminants (chloramines, haloacetic acids, total trihalomethanes, barium, chromium, and fluoride), coliform bacteria, and turbidity were all negative in Aurora's water. Staying strict to water testing and following EPA standards and regulations, Aurora's water department won a president's award for its water quality. The filter performance of Aurora's water supply is prominent because "Aurora Water Treatment Facility [is] in the top half of the top 1% of surface water treatment plants in the US." (Schumacher 2). Even though many of the city's monitoring in the water reports are unregulated, they still go over them to ensure the protection of the community.

Like the water cycle, water always comes back. Groundwater can be evaporated into the air until it precipitates into oceans and rivers until it infiltrates back into the ground. Similarly, once wastewater goes down people's drains, it goes through the

community's sanitary sewage system to come back to the environment. After going through multiple processes, the water is then released into local waterways where it is put into numerous purposes, like drinking water, irrigating crops, or sustaining aquatic life. For proper sterility, the sewage water includes an assuage treatment plan to take out solid objects in the pipes. The second stage of the treatment plan is to use "good" bacteria to eat away smaller, visible fragments that are contaminating the water. Lastly, in the settlement tank, bacteria are separated from the water, leaving it distilled. Managing a dual sewage system, the water always goes through basins or rivers, lakes, etc. However, this process leads to many infrastructure failures.

While many Aurora citizens are taking for granted the opportunity and privilege, they have to drink clean water, many other cities across the country are experiencing terrible water conditions like the Flint water crisis six years ago. For water to be safely distributed into our homes, the city of Aurora and other cities must also go through extensive procedures of filtering, monitoring, and reporting the water quality. Living in a privileged society, children and adults must learn to understand and pay attention to their water supply because one of the driving factors for the sustainability of humanity lies within water; "thousands have lived without love, not one without water." (H. Auden). 



ILLINOIS



Macy Schroeder, Creative Writing Prompt Winner (Northern Illinois)

Essay: It All Returns to Dirt

Macy is 14, lives in Naperville, IL, and will be a freshman at Metea Valley High School. She is an avid reader and is passionate about learning. Macy is an excellent student and an even better person.

MACY'S ESSAY

I don't even have time to react before a sandpapery tongue is lapping me up from the lake I've been calling home recently. I'm thrown into the place of an animal I've learned is called the stomach. Other water molecules float around. Well at least I'm not alone this time. One other molecule comes over to me, asking how I got here. I don't respond. The molecule continues to talk to me as if I told some harrowing tale about how I arrived in this rodent's stomach. No harrowing tale for me.

I can feel the beast slowing down. Breaking down. I've never been in a creature as it dies. He falters and trips. Eats less and less. I wonder what happens to us when he dies. I'm sure I know, deep down, but after so long in the cycle you forget things. There are some things I remember though. One of which is a waterfall.

I'm pretty sure it rained down to the fall, but things get fuzzy. I just remember the peace of the waterfall. The company. Being surrounded by other water molecules all rushing and sliding around on rocks, down rocks, through rocks. There is something so calming about the craziness that is a waterfall. I was there for a while. After sliding down the fall I stayed in the mini pond below it for some


time and I evaporated a few times only to rain down right back in the river that led to my fall. I didn't mind. I liked the falls. I wish I could go back there sometime. But after the falls it was nice too. I finally evaporated away from my waterfall and pond. Traveling in the clouds was always nice too. Cool and relaxing. No one really talked in the clouds. It was a R&R experience. Not that there was much to stress about as a water droplet. Clouds never last long though. Which is always a shame. Some of the water molecules I've met enjoy raining and becoming something new, but I wish I could stay in the clouds. But alas, that's not quite how the water cycle works.

So once my cloud gets heavy enough, I let the rest of the rain pull me down with them. This time I fell into what I think is a rain gauge. It takes a while for the rain to stop and by the time it does, I've been buried in other molecules. The next day, I come to while something cool and metal scopes me out of the rain gauge. A canteen. Someone is carrying the canteen, as expected, and they swirl it around thoughtfully. They take an appreciative sip of my water. Not me through. I stay put. We walked a bit more until we reached the lake I spotted earlier.

They sit for a while before surprising me and pouring the rest of the canteen out into the lake. They say something but I can't hear it due to the rushing of the water molecules around me.

This lake was where the rodent drank me.

Decaying is slow. Boring almost. But I can feel the skin of the animal dissipating. And finally, I slip out of the unmoving creature and sink into the soil. Compact and dark. Soil was always nice as well. Lonely. But nice. Once buried deep enough, I reflect. It's been a while since I didn't that. Looking back on my few memories of life. Soil seems as good a place as any to do so. I let myself think back. Over the waterfall. The canteen. The lake. The journeys through places and people that need me. It's odd to think. The person who carried me in the canteen needed me. Even if they never drank me, they still needed me for something. The pouring was symbolic I assume. For what? I don't know, but I hope I helped them. The rodent as well. Despite the eventual death of the creature, I was still needed. It's odd to become aware of such mortality, since the concept does not exist to me.

Though it seems, even without the threat of death, we still all return to dirt. 



ILLINOIS



David Wang, Research Prompt Winner (Central Illinois)
Essay: One Step at a Time

David is 13 years old and from Champaign, IL, where his favorite subject in school is Math. In his free time, David enjoys playing piano, computer science, and practicing martial arts. David's favorite ways to enjoy water are drinking a cold glass of iced water and both hot and cold showers.

DAVID'S ESSAY

Water is everywhere. We use it daily in drinking, washing, cooking, and much more. During these modern times, water is something many of us take for granted. A twist of a handle, a click of a button, and water comes gushing out. But why does it come gushing out? How does it work? Where does the water come from, and can we be sure it's clean? This essay will discuss and explore questions like these.

I live in Urbana, IL, and we get our water from the Mahomet Aquifer, which also serves the greater Central Illinois region. After the water is drawn, it is processed by the American Water of Illinois. Using filtration systems, they remove minerals and large particles. Then, chlorine and fluoride are added to kill dangerous microbes. It is then distributed through underground pipes to our local area (Champaign, IL).


Drinking water comes from lakes, rivers, and groundwater. Michigan and the surrounding states get their freshwater from the Great Lakes. Some countries in Europe get theirs from the Mediterranean Sea. Coastal countries/states have begun de-salinating ocean water into freshwater. The rest of the water

usually comes from surface water, lakes, rivers, and groundwater (Tan). However, even after treatment, water can still be contaminated during transportation.

Even after vigorous treatment, the water may still be contaminated. This is due to the pipes, which are made up of lead and copper. As the water runs through the pipes, the pipes corrode and parts of the pipe can land as residue inside our drinking water. The Flint, Michigan crisis is a great example of this type of water contamination. Its citizens had to start a movement to bring bottled water in the thousands for all purposes – cooking, cleaning, and drinking. Flint, MI did not have clean water for five years (2014-2019). Thankfully, they now have safe water to drink (NRDCfix).

After water is used and disposed of in homes and businesses, it soon enters a treatment plant. The first stage is to remove floating objects such as sticks or cloth. They do this by allowing the water to flow through a screen. After it is screened, it passes into a grit chamber where small stones, sand, gravel, and other small debris sink to the bottom. After all this treatment, there are still bits and

other flotsam in the water. These eventually settle at the bottom, where they become sludge and are used for fertilizers. According to Bruce Rave, spokesman for the Urbana Champaign Sanitary District, After the water is treated in Champaign, the water goes into a drainage ditch in Urbana which empties into the Wabash River. The Wabash River washes into the Ohio river and then the Mississippi river. The Mississippi river then empties into the Gulf of Mexico, a part of the Atlantic Ocean (Rave).

Either from Aquifers, lakes, rivers, or groundwater, the process of drawing, filtering, and transporting water is no small task. Every day a family uses around 100 gallons of water (How Much Water). So many of us take our water for granted and do not realize the long and complicated process of cleaning, filtering, and transporting. Only 3% of earth's water is freshwater and is safe for us to drink. If we continue to waste our water, then there will soon be none left (Earth's Freshwater). But not all hope is lost. If we conserve and use our water wisely, humanity may be saved. Together we can accomplish this – one step at a time. 



ILLINOIS



Avary Shudrowitz, Creative Writing Prompt Winner (Central Illinois)

Essay: Where, Oh, Where Did Drippy Go?

Avary is 14 years old, from Springfield, IL, where her favorite subject is advanced science. In her free time, Avary enjoys drawing, playing video games with friends, bicycling, spending time with my family, and collecting and restoring dolls with her mom. Avary's favorite way to enjoy clean water is swimming with her friends. Avary loves "that there are so many different ways to enjoy being in nature around a body of water, whether it is fishing, boating, swimming, tubing, or just sitting on shore relaxing."

AVARY'S ESSAY

WOW-WEE... If you only knew the journey I, a single droplet of water, had to endure before arriving here in this tall glass of ice-cold, purified water you are about to savor, you might think twice about letting the faucet run while brushing your teeth! Well, let's start at the beginning, shall we? My name is Drippy. I am a water molecule, that is two hydrogen atoms and one oxygen, and live in Lake Michigan in a liquid state of mind. Just a few short days ago, I was sunbathing on the surface of Lake Michigan with my friends when the strangest thing happened to me. Suddenly, I began floating up, up, up, and away into the atmosphere as a tiny, little vapor droplet, drastically different than the liquid state I was a moment ago. Luckily, there were plenty of small particles offering to give me a lift over to a nearby cloud where everyone who vaporized from the surface were. After playing a round of "20 Questions" with nearby water droplets, everything happening around me became very clear-I had joined the infamous Water Cycle and was scheduled to rain down somewhere near Springfield, IL. I landed in Lake Springfield and was swiftly swept up into the enormous CWLP Water Purification Plant along with a fish, an old shoe, and algae. I was shocked at the intense processes a tiny little molecule like me had to endure in order to be "good enough for human consumption." I was filthy after spending

a few days in the atmosphere with all the smog and then in a lake filled with garbage, dead fish, and bacteria. As much as I didn't want to admit it, I needed a bath!

The water molecule behind me must have sensed my fear of the unknown that lay ahead of me. She says, "Oh, honey, don't you fret your pretty little oxygen. Once the carbon activates, it feels like a purification inside and out-absolutely spiritual experience if you ask me."

I am not too sure her words had the desired effect...what does a "spiritual experience" have in common with carbon?

She continues on. "You wouldn't believe the particles that I have shed in the 'Iron Shower,' heck, I imagine some probably are unknown species." She lets out a horrendous cackle echoing off the chamber walls.

I tried to show my appreciation for her kindness, but all I could utter was something about doing our part in fighting tooth decay with fluoride additives.

Once I entered the chemical dosing chamber, any fear I had was replaced with dismay. I was shocked that our natural water supplies are polluted to levels that require each molecule a trip through a "chemical dosing chamber." It seems so unnatural. Each water molecule moved through this process like one would herd cattle through

an immunization clinic. I just felt so deflated and unappreciated as I worked my way through the next step, Helical Flow Clarifier.

"Cheer up little one, we are almost out of this place and onto another adventure into the unknown. Springfield has over 768 miles of water main lines that we get to flow through until we find our way to a spigot!"

I looked up to find an old soul molecule smiling at me.

"And then where?" I inquired.

"Well, that's the beauty of the water cycle, youngen, the possibilities: Will you evaporate off the surface you find when you spill out of the faucet? Will you find your way into a human body where you take on a whole new environment with its own water cycle?" That elder water molecule did speak truth, but my disappointment lies with the beautiful perfection of the water cycle to purify, cleanse, and balance itself naturally. I guess I just feel that if waterways and systems were protected and respected on a level humans are lacking to do, then no water molecule would have to endure being subjected to such harsh conditions within the Water Purification Plant. I feel that when harsh chemicals are used to in water treatment plants and wastewater treatment plants, the issues are only being complicated with excess by-products and chemicals being introduced into the water cycle. **CS**



ILLINOIS



Gianna Aiello, Creative Writing Prompt Winner (Southern Illinois)
Essay: Water's Worth It

Gianna is 13 years old, from O'Fallon, IL, where favorite subject in school is science. In her free time, Gianna enjoys musical theater, singing, robotics, and playing with her pets. Gianna's favorite way to enjoy clean water is swimming, nice warm baths, and watering her herb garden.


GIANNA'S ESSAY

Swoosh, swoosh. The sound of the faucet rings in my ears as I start to feel weightless and begin to fall. A rush of adrenaline pumps through my veins as I pray that I make it out alive. Right as I hit the ground, I felt like I was being sucked into a vortex. It was the drain! As I clutched on for dear life, I remembered this feeling. I was going through the water cycle again.

I decided to let go, already knowing my fate, and I was spit out into the ocean. The playful sounds of the dolphins and the salty smell of the ocean, being in the water, being part of the water, began to calm me. I took a deep breath of the salty water and sat back and relaxed, but right as I started

to get comfortable, my body began to float up into the air as water vapor, and I started the evaporation process of my water cycle. I looked over and saw my friend Clair, and I called over right as we started to condense to form clouds. As we became a cloud, I started to feel claustrophobic again, but then I lost my grip and began to fall thousands of feet below into the river as I felt the jaggy edges of the rocks and the slimy feeling of the salmon's scales.

I took a breath of relief as I floated down the river when I realized we were about to go over a cliff. I had never done this before, so I clutched on to a fellow water droplet as he screamed in an aggravated voice,

and I began to comprehend that this might be the end. I let go knowing my fate. As I rolled down the waterfall, I prayed that this wouldn't be the end, and then it ended just as I hit the little pond at the end of the waterfall with a splash, and I found myself in the same spot I was in just a day before. I was sliding down the sewer pipe right back into the facility in which they cleaned us. This was my favorite part. I stepped into the dish as they gave me the shower I had been waiting for since yesterday. I went back through the pipes, weaved through the rust patches, and made it back to the next sink I will go through. I had just been through the water cycle, and what a remarkable experience it was! 

Keep an eye on www.cswea.org for information and encourage your student to enter in 2023!