



Chemicals, wells and coconut shells

Chemical spills are easier to clean up before they reach groundwater

By Quinn Schwabauer
LODI HIGH SCHOOL

Almost everyone has poured or sprayed something on the ground; maybe it was oil, or maybe it was a pesticide. You didn't pour it in the water. No harm, no foul, right? Wrong.

Whenever it rains, or whenever you turn on your sprinklers, the water picks up whatever is on your lawn and carries it with it as it seeps into the ground. It tunnels its way downward, straight into Lodi's groundwater supply. When it comes to groundwater, Lodi has a big problem:

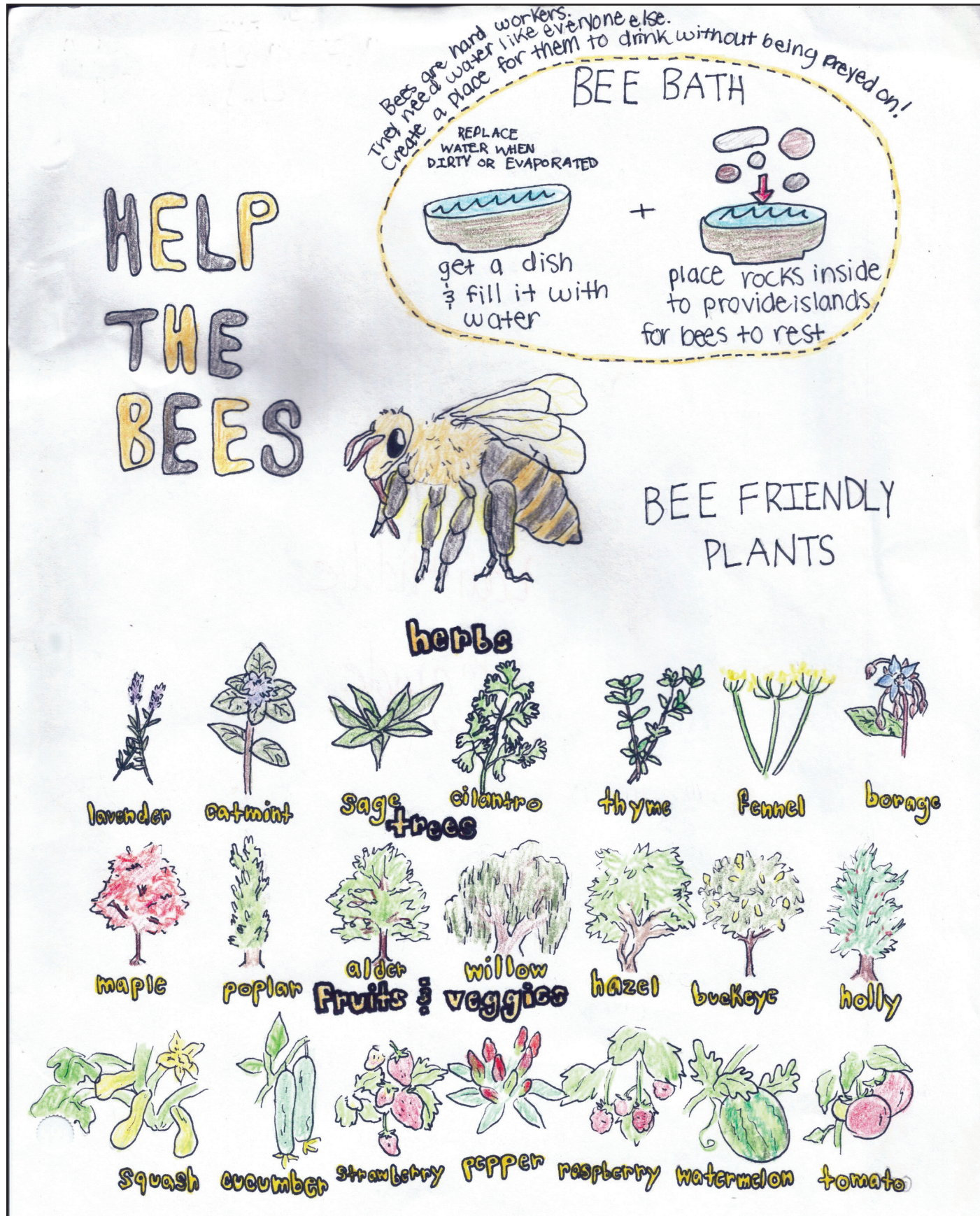
Pollution. If you were to turn on the tap right now, about 40 percent of the water that comes gushing out is groundwater. That water is supplied by 28 different wells in town. About one quarter of those wells pull up polluted water. That's not to say that the wa-

ter you are drinking isn't safe. It is. It just costs a lot to make it that way. The contaminated wells run their water through carbon filters. However, that process isn't necessarily the expensive thing. It's what the filters are made of: Coconut shells and activat-

ed coal. That's right, each year the City of Lodi spends almost half a million dollars on burned coconut shells and activated charcoal. Seems pricey, but that's because it's not the stuff you put in your barbecue. Its technical name is Granular Activated Carbon, and it removes chemicals from the water by sticking to them. These filters are amazingly effective, and they need to be in order to keep Lodi's drink-

ing water safe. The chemicals that pollute our groundwater can be extremely harmful. The three major pollutants are TCE, PCE, and DBCP. Carbon from coconut shells works best for removing chemicals called TCE and PCE, while activated coal works best to remove the pesticide DBCP. TCE, also known

PLEASE SEE FILTERS, PAGE 4



KIEREN NICHOLAS BEDFORD/LODI MIDDLE SCHOOL

Above: Kieren Nicholas Bedford of Lodi Middle School shares tips for creating a bee-friendly garden to help the vital pollinators. Below: A moth by Haylee Falkenberg and a dragonfly by Justin Anselmi.



VINEWOOD ELEMENTARY SCHOOL

What is an Earthkeeper? Heritage School answers

HERITAGE ELEMENTARY SCHOOL

Eriberto

An Earthkeeper is a cleaning machine that helps the world and protects the environment.

Roxy

An Earthkeeper is a group of people who clean up garbage. For example, at Heritage School, fifth- and sixth-

graders clean around the school to keep it clean. It is a good thing to do because otherwise we will have garbage all around. So, that is what I think an Earthkeeper is.

Raquel

An Earthkeeper is someone who cares about their environment and cares about the Earth's health. Earthkeepers pick up trash from non-Earthkeepers who don't

care about the Earth. The Earthkeepers are kids who want to make a change in life! An Earthkeeper is a hero.

Darlene

An Earthkeeper is a person who "saves the world" from it being polluted, and keeps the world clean. They help the environment stay nice and clean.

PLEASE SEE KEEPERS, PAGE 4

Storm Drain Detectives visit San Francisco Bay

By Hayley Hower
LODI HIGH SCHOOL

The trip to San Francisco with Storm Drain Detectives (SDD) held a lot of firsts. We were able to see and feel the living organisms that impact our human life daily. High school peers and fifth-graders were able to witness and gain knowledge about the bay and Delta that we live very near to, and why they are so important to our daily lives.

The Marine Science Institute's (MSI) main goal is to make learning about the environment we live in fun for all ages.

Our day consisted of many fun group activities on Pier 39 and at the Redwood City headquarters for MSI. While we were on the boat we gathered mud in a frantic "mud grab" by throwing a claw on the bay's ocean floor. We were then able to find invertebrates by sifting through the mud. After we were done, we had to take an oath, that we promised to protect — no matter how ooey goey — the creatures of the ocean floor by putting the mud on our faces!

Later, we set a giant net out behind the boat. We caught many fish and had to identify all of them. It took a lot of teamwork to pull up that giant net. We were able to touch all of our findings, but interestingly enough, the group before us caught a leopard

shark that we were also able to touch!

After that, we went over to the portside of the boat and caught plankton. We took the ocean sample and examined it under our microscopes and identified the microorganisms. Of course, being in Storm Drain Detectives we tested the pH, oxygen levels, nitrites and more of the sea water we collected. On the day we went, April 1, 2016, the weather was fantastic and the water tested to be all normal. Therefore, we are doing our job so far of protecting the ocean wildlife.

Fun fact: Did you know that plastic never biodegrades? This means that the material most things are made of are still in our landfills. This is why recycling is so important. The National Park service claims it takes 450 years for a disposable diaper to biodegrade! The disposable diaper was invented in 1948. That means the first diaper that was ever used is still around, and so is all the plastic.

The MSI, and I, strongly believe in educating youths so they can have a bigger and better impact in the world. I'm very glad to be part of the SSD organization.

In addition, I want to raise awareness of water quality that leads to better lives for everyone. I am proud to keep my promise to help protect the wildlife of the ocean.

My experience as a Storm Drain Detective

By Dylan O'Ryan
LODI HIGH SCHOOL

According to www.dosomething.org, approximately 40 percent of the lakes in America are too polluted for fishing, aquatic life, or swimming. This is a startling fact that we may have to come to in the city of Lodi. Pollutants like trash, plastic, cigarette butts, and much more can all have serious consequences on our very own community.

Storm Drain Detectives (SDD) investigates the effects of pollutants on our very own Lodi Lake. As an active member in SDD, I have had some memorable experiences that I would never have had without the program.

One of the many experiences that I have had is being an active member in the community. There is nothing like knowing that I am being proactive for the city I live in. Being able to test water quality in the very same place I enjoy what it may offer is simply fulfilling. Another experience that I

Storm Drain Detectives Team Leaders

- Sandi Starr (Tokay High, since 2007)
- Jud Atwater (Lodi High, since 2013)
- Melissa Turner (Lodi High, since 2004)
- Julie Christensen (Lodi Middle, since 2014)
- Janine Jacinto, (Heritage, since 2014)

have had while participating in Storm Drain Detectives is making connections. SDD has given me a chance to meet new people from all backgrounds of life.

Through the people I have met, I was able to volunteer at the NorCal Science Festival. At this festival, I was able to teach the public about how important keeping water pollution-free is. This festival at Tokay High

PLEASE SEE DETECTIVES, PAGE 4



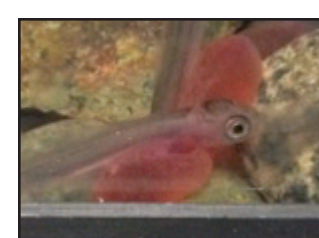
Learn more about Lodi Lake, plastic

Student writers share facts you didn't know about our very own Lodi Lake and what happens to plastic after it is thrown out in the garbage. **2**



Nature appears in student artwork

Lodi Unified students use their artistic and creative writing skills to celebrate local and Pacific wildlife, Lodi Lake and the Mokelumne River. **3, 6 & 8**



A year of raising young salmon

Students from Heritage Elementary School spent the year helping several young salmon grow, and learning about their life cycle in the process. **6**

Are we saving the Earth – or biodiversity?

By Anastasia Woahy
LODI MIDDLE SCHOOL

Are we truly saving our home, Planet Earth? Or are we saving ourselves along with abiotic-biotic factors?

The Earth has been polluting ecosystems since its beginning, destroying habitats with natural disasters (for example, when a volcano explodes it releases a gas called sulfur

dioxide). The Earth has been fine and hasn't had any trouble, for it is a rock that has a nickel core and provides a protective atmosphere for life to flourish in.

It is important to stop or at least try to cease major events that harm our existence, but we truly aren't actually committing a righteous act by "saving the Earth," so to call a holiday "Earth Day" or say "I am saving

the Earth" isn't accurate. It makes me wonder why we try to put ourselves on a pedestal when we're just trying to save ourselves and other organisms.

The only reason we actually try to "help" our Earth is for our own benefit. Sure, you can say "I plant trees," but in reality you just helped yourself and other organisms by creating an oxygen source; so how do trees help

our rock of a planet? So don't tell me that you haven't helped something or someone for your own benefit.

Sometimes — or actually, most of the time — we don't do things to benefit us; for instance, community service appears to be ignoble when it is used as punishment for crimes.

Don't get me wrong, I think saving the people who live on this Earth is important and all, but I find it quite

ignorant for us to claim that we are "saving" something that in reality isn't actually in danger but rather we are.

The answer is that we are trying to save biodiversity, and not the Earth. No matter how much we say we are saving the Earth, we in no way are, but rather the things that thrive underneath the atmosphere and on a planet we call Earth.

Learning about plastic

The following excerpts come from students at Heritage Elementary School, who decided to explore the effects that plastic has on the environment.

Plastic

Do you know how long it takes for plastic to decompose? Well, it doesn't!

Plastic just breaks down into small particles, and only if it's exposed to light. For example, if you had thrown away a plastic bottle five years ago, it still exists right now (if it's in a landfill, and not exposed to light).

Plastic is made of crude oil, and crude oil is a non-renewable natural resource. Did you know that plastic particles are called "nurdles?"

Do you know how much plastic in the United States gets recycled? Only 27 percent of plastic gets recycled. Throwing away a plastic bottle is throwing money away. More than \$1 billion worth of plastic gets thrown away each year.

You might wonder, what does that 27 percent mean? That 27 percent means 35 billion plastic bottles get recycled. We still need 73 percent. If we could save 1 billion gallons of oil, we could save 44 million cubic yards of landfill.

Remember, reuse, reduce, recycle, and rethink what you're going to do with a plastic bottle. Also, it is your responsibility.

— Cindy Ramirez,
Heritage Elementary School

The Great Pacific Garbage Patch

In the Pacific Ocean, there is an area called the Northern Pacific Gyre, where ocean currents come together and move in a large circle. These currents collect garbage. People call this the Great Pacific Garbage Patch. Eighty percent of it comes from land. Garbage floats down rivers and streams, then down into the ocean.

Plastic bags are carried out to the sea with the wind. Then ocean currents carry all of this and other garbage to the Great Pacific Garbage Patch. A sailor near Hawaii discovered the Great Pacific Garbage Patch in 1997, when he found himself traveling through waters filled with garbage. He calculated about 3 million tons of plastic floating in the water.

All of this garbage is hurting the environment. Plastic attracts pollutants and it's called chemical water pollution which counts as poison. Most plastics are non-biodegradable, which means it's not capable of being decomposed by bacteria or other living organisms.

— Elida Orozco, Heritage Elementary School

A plastic bag's adventure

Have you ever seen anyone dump trash? Well, that trash must have ended up somewhere.

Let me tell you about a plastic bag's adventure. When you go grocery shopping and return with a plastic bag, what do you do with it? If you just throw it outside, you are littering! That plastic bag might go down the storm drain into the river and possibly into San Francisco Bay.

For example, our class was on a research vessel in the San Francisco Bay Area. We were capturing fish in a huge net to see what kinds of animals were living in the bay. Guess what we saw? At the end of the net there was also a plastic bag! A few fish were found dead in the bag.

Another problem of a plastic bag is if some sea creature is hungry and thinks the plastic bag is food. That would be perilous!

And that is the harm only one plastic bag could do! Do not let more make their way to the bay and harm other creatures!

— Faatihah Khan, Heritage Elementary School

Decomposable objects

Do you know how long certain objects take to decompose? For example, take a guess of how long some plastic objects take to decompose. Have you taken a guess? Well, a plastic jug (think about the plastic jug that your milk comes in) takes 1 million years to decompose. That is a pretty long time, if you ask me. And for a plastic bag, it takes 20 to 1,000 years to decompose, depending on exposure to light.

As for a paper bag, it takes about one month to decompose. That is a pretty short time compared to a plastic bag. And for cardboard it takes about two months. Oh, and a newspaper takes about six weeks.

Now try to guess how long glass takes to decompose. Well, have you taken a guess? Glass takes 1 to 2 million years to decompose. That is a pretty long time.

This isn't actually related to glass but disposable diapers take about 550 years to decompose, according to Cleveland State University. Yeah, the diapers that you wore, and your father, and grandfather, haven't decomposed.

And as for aluminum, it takes 200 to 500 years. But, if recycled, they can be reused, recycled, and back on a store shelf in six weeks.

— Diego Cervantes, Heritage Elementary School



PHOTOS BY MADISON HOWELL/VINEWOOD ELEMENTARY SCHOOL

A cigarette butt is seen on a log at Lodi Lake.

Five things to know about Lodi Lake

By Stephanie Quiroz
LODI MIDDLE SCHOOL

How often do you or family members visit Lodi Lake? As a group, the Lodi Middle School Earthkeepers frequently visit, and every time we learn more about it.

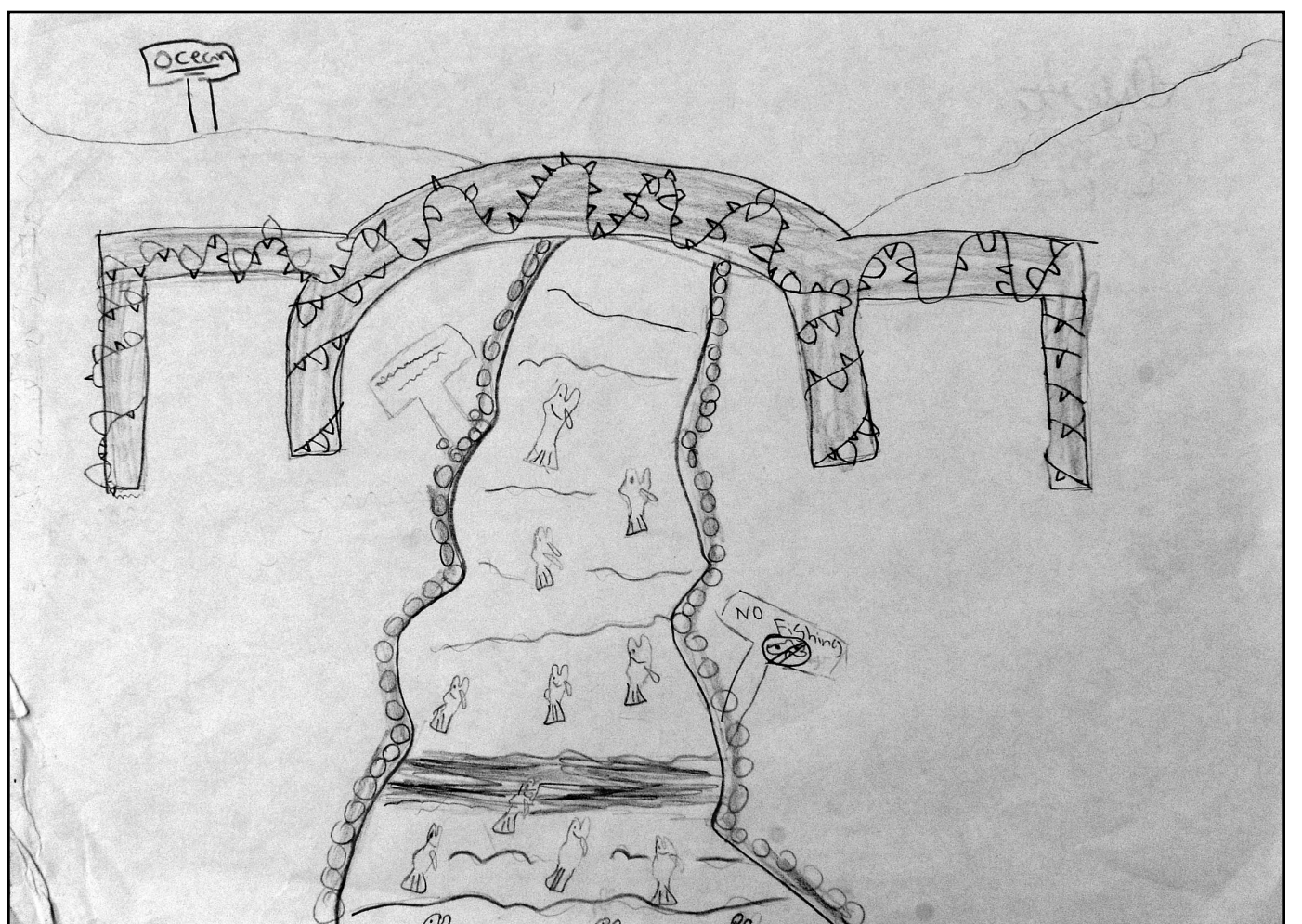
We are very curious as to how much you really know about Lodi Lake. Here are a couple of facts:

- Lodi Lake is a man-made lake which started as a small pond, but was made bigger in 1934 because the Woodbridge Dam built in 1910 could not hold back all the water.
- The lake was officially made Lodi Lake in 1934 when the City of Lodi got it by donation from local landowner Louis T. Mason.
- The bell in front of Lodi Lake is from the first school in Lodi, Salem School. Also, the beach area was once grazing land for pigs.
- The lake is inhabited with squirrels, turtles, deer, opossums, and a variety of birds.



Lodi Lake, the jewel of the Lodi parks system, was donated to the city in 1934.

Please support your local lake and visit 1101 W. Turner Road in Lodi. For questions about Lodi Lake, call 209-333-6742.

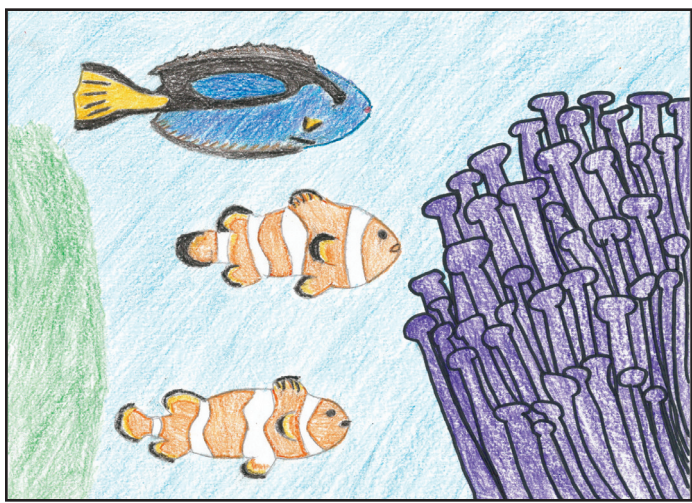


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Lodi student artists celebrate nature



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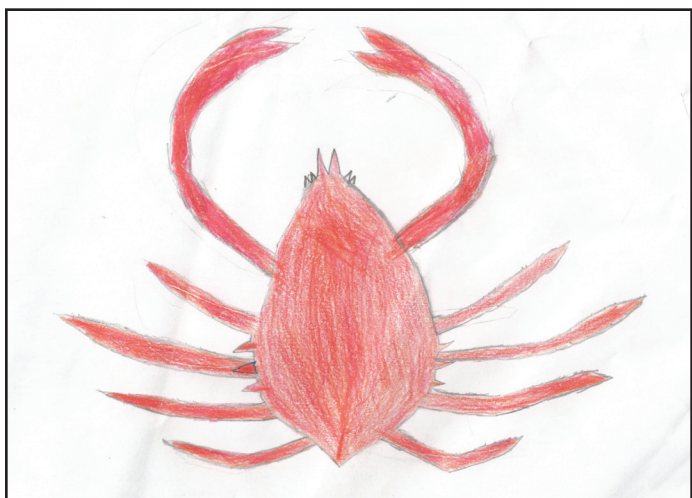
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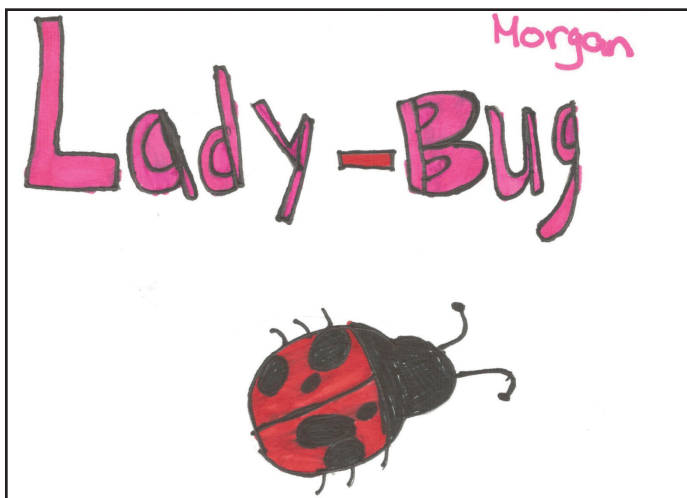
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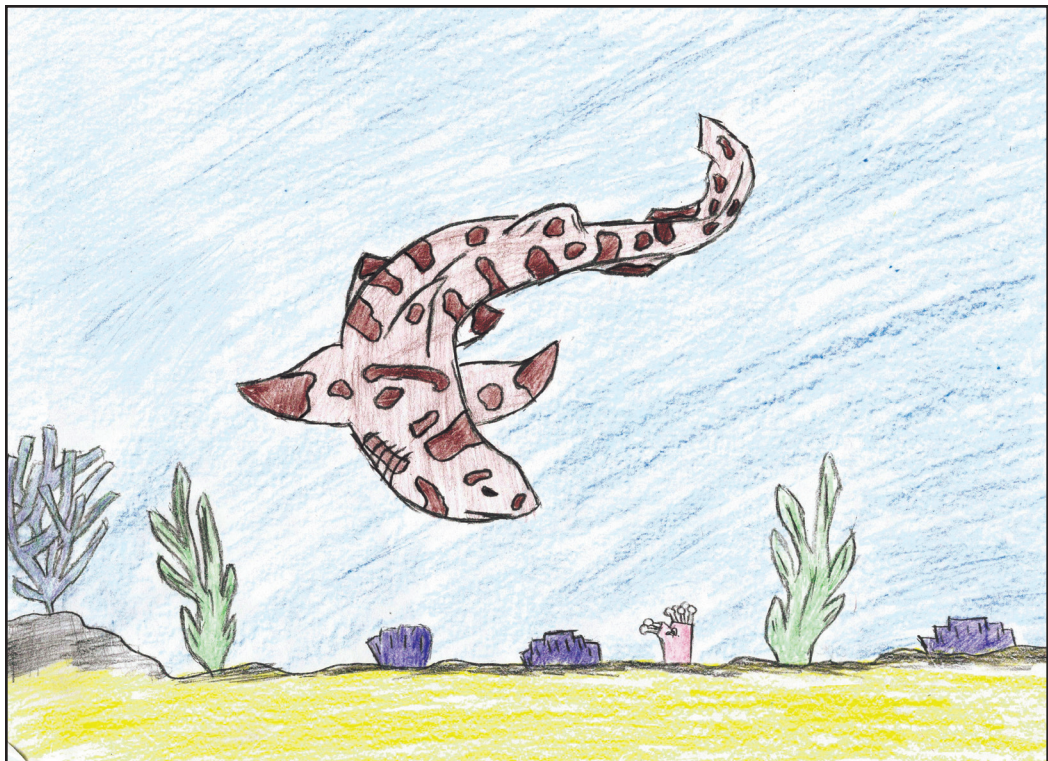
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The process of cleaning water in Lodi

By Leslie Ortiz
HERITAGE ELEMENTARY SCHOOL

Have you ever thought about what happens to the water you use to take a shower, brush your teeth, and flush the toilet? Well, today I'm going to tell you!

First of all, it takes about six to eight hours for that water to go to a place called White Slough to be treated. When the water gets there it goes through a cleaning process.

The water goes through the primary treatment, and that's when tiny bugs

hold onto the waste, which sinks down and the bugs eat it.

Next, it goes through secondary clarifiers, where it all gets all clean.

But that's not all! Then it goes through UV disinfecting where all that clean water is good to use for agricul-

ture and a power plant.

But that water is not for drinking even though it's clean enough for you to drink it without getting sick.

Plus, did you know that about 125 million gallons of water gets treated per day!?

FILTERS

CONTINUED FROM PAGE 1

as trichloroethylene, is a carcinogen, meaning it causes cancer. It is used by newspapers and mechanical printing presses and mechanics to clean machinery.

PCE, otherwise known as tetrachloroethylene or perchloroethylene, in small amounts can give you headaches or make you dizzy and uncoordinated. High amounts of PCE can make you pass out and may even be fatal. PCE can be used the same way as TCE; however it is mainly used in dry cleaning.

DBCP stands for dibromochloropropane. It is used by farmers as a pesticide to kill nematodes. Nematodes are small worms that eat the roots of grapevines.

However, DBCP doesn't just hurt nematodes. It can cause kidney and liver damage. It also causes infertility in men, meaning it makes them unable to have children. Irresponsible disposal or use of these chemicals has helped them find their way into our water.

This doesn't mean that the polluted water we are pulling up now was polluted recently. In fact, the water pulled up from Lodi's wells, and most other wells, has probably been in the ground for at least 40 years. Laws making chemical dumping like this illegal only really began to be enforced in the 1980s. Chemical dumping had been going on since the 1940s.

Enforcement of these laws, along with a huge local cleanup effort, has changed things immensely. The main funders of the cleanup are the very companies that polluted the water just 40 years ago. Lodi's groundwater is getting cleaner day by day.

The next time you have chemicals to throw away, dispose of them safely, or they'll end up in the very water you drink.

Heritage students do their part to help the planet



PHOTOS BY ROXANA MAGALLON/HERITAGE ELEMENTARY SCHOOL

Each Friday, students in the Earthkeepers club at Heritage Elementary School pick up trash from the school grounds. Above left: Miguel Arias, left, shovels old, dead leaves into a garbage bag held by Brian Garcia. Above: Earthkeepers cheer after another successful Friday cleanup. Left: Gaby Gonzalez gathers trash. Below: Food wrappers and other litter collected by the students is ready to be thrown away.



KEEPERS

CONTINUED FROM PAGE 1

Hector

An Earthkeeper is a person who cleans the environment to keep it safe.

Paloma

A person who helps the world. An Earthkeeper cares about the planet.

Fermin

An Earthkeeper is a person who cleans up trash everywhere.

Brian

A person who cleans up our school and picks up trash in school, and out of our school.

David

Responsible, trustworthy, neat, and loves to keep our world clean.

Diego

An Earthkeeper is a person who is a responsible and loving person towards Earth. An Earthkeeper is a protector of Mother Nature. An Earthkeeper is a person who keeps the Earth clean.

Faatihah

An Earthkeeper is a person who takes care of Earth and the environment around us. An Earthkeeper wants to keep Earth and our environment safe.

Miguel

An Earthkeeper is a person who is devoted to keeping our planet one of the greenest and cleanest places in the universe. They also are responsible for the cleaning of our school campus.

Hermelinda

Earthkeepers are an awesome group of fifth- and sixth-grade kids who pick up garbage on Fridays after school. They are trying to make the world and our school a better place! That's the meaning of an Earthkeeper.

Gaby

An Earthkeeper is someone who cares about the planet and has the courage to do something to help save the world. An Earthkeeper is someone who should never litter, not even when someone is seeing you or not ... "respect"!

Mariajose

An Earthkeeper is a person who strives to make this world a better place by not polluting the world, but by doing the complete opposite. Earthkeepers "save the world!"



Left: Lisset Martinez and Nancy Jimenez decorate clay cut-outs for an art project. Below left: Monica Ortiz, left, Kathia Rodriguez, center, and Elida Orozco paint tiles. Below right: Faatihah Khan shows off the tile she made. Students created the clay tiles for a Mokelumne River watershed-themed trash receptacle on a recent Friday at Heritage Elementary School. Davis artist Donna Billick and her Rock Art team helped the students create shapes from clay and paint them. The pieces will now be fired at another location; the student art is expected to be installed in mid-June. The LUSD Got Kids Foundation and Cal-Waste helped to make the art project possible.

PHOTOS BY LESLIE ORTIZ/HERITAGE ELEMENTARY SCHOOL



DETECTIVES

CONTINUED FROM PAGE 1

gave me an opportunity to meet new people, learn new information and have fun.

One of the many experiences that I have had is to learn about how the way I live can have an impact on where I live. While studying the conditions of Lodi Lake, I was also gaining experience on how something so simple can affect a wonderful ecosystem greatly.

While gaining a lot of educational experiences, I have had some memo-

orable and funny situations. While the City of Lodi is fixing up the dam, Lodi Lake is drained. Since the bottom of the lake is dirt and there was water on top of that, there is mud. While I was testing the water, I accidentally fell in the mud! I then had to walk all the way to drop off the testing equipment all muddy.

Another funny time was at the Nor-Cal Science Festival, I was running a booth that demonstrated how pollutants like bug spray gets into the water ways. This model used red drink powder that would then dye the water. Using this method by the end of the

day dyed my hands all red.

The most important experience that I have had through SDD is one that I can apply to all of life. That lesson is to always listen and re-check important projects. While testing Lodi Lake I was testing the dissolved oxygen in the water. I did not check what mode I was on, this gave me a wrong outcome. My teachers, Mrs. Turner and Mrs. Grant, told me to go all the way back to re-test the dissolved oxygen, or the amount of oxygen in the water.

This may seem like a very small lesson, but it truly taught me to always double-check and simply be aware of

what I am doing. This lesson will help me through future school, jobs and life.

Storm Drain Detectives is available for people who are in the fifth grade and above. The only requirement is that you have to be transported to and from Lodi Lake. It is simply a wonderful program to participate in and I strongly recommend it to anyone interested.

Overall, Storm Drain Detectives will give you experiences, connections and friends for life. It provides a lifetime of values and principles that you may not learn without SDD.

Heritage fourth-graders raise salmon from eggs

Clean water is important to human health — and doesn't take a degree

Salmon facts

We were the only class to raise salmon. The Mokelumne River is where we get our drinking water. The alevin needs to be in the dark. A lot of animals eat alevin. As long as they know how to swim, they would know how to survive. As long as they keep their young safe they would survive.

When they go to the Mokelumne River Fish Hatchery, they open the salmon so they could get the eggs. The salmon temperature needs to be around 50 and 59.

The spawning salmon are huge. They are bigger than most salmon.

— Martin Cadena, Heritage Elementary School

Life cycle of a Chinook salmon

In the salmon life cycle, first the female salmon spawn eggs inside their stomach. After they spawn, the female salmon die and leave the eggs in a safe, clean rock nest. The eggs look bright orange with a black dot in the middle. The black dot in the middle represents the eye of the alevin.

After the eggs hatch, alevin come out. Alevin are little fish with a yolk sack. The yolk sack is what they feed on before they turn into Chinook fry. When they turn into fry they usually stay then 4 months in fresh water.

After five months they turn into juvenile salmon. Juvenile salmon go to the ocean and stay for two to five years. After that, they go back to the Mokelumne River to spawn more eggs.

This is how the salmon life cycle happens.

In Ms. Rott's fourth-grade class at Heritage Elementary School, we raised salmon. This is why I know this information.

— Monica Ortiz, Heritage Elementary School

Chinook salmon life cycle

As the beautiful Chinook salmon grow, their lives turn harder. The Chinook salmon has to go to jump the ladder and then the salmon heads to the ocean. Then the salmon stay in the ocean and then the salmon heads back to the Mokelumne River.

There's a reason the salmon has to go to the fish ladder. The salmon gets up the ladder, and then the salmon gets caught by the men and then the men get the salmon and then hit it in the head with the hammer and then the salmon dies. The salmon's eggs get put in the container and then the men leave the eggs in the container until they can see the dot in their shell.

So after they hatch the salmon don't have to be fed because the alevin has yolk sack and in that yolk sack there is a lot of food in there.

They call salmon alevin when they have their yolk sack because as they grow they get called different names because of the life cycle. And then when the salmon loses their yolk sacks, they have to be called smolt because the salmon are called that after their second stage name.

And then after the smolt stage their second name is the ocean salmon because the salmon heads to the ocean and then life cycle begins again because they're going to go to the Mokelumne River to spawn.

Thanks to Mrs. Grant for giving us a chance to explore the world.

— Ivette Garcia Lopez, Heritage Elementary School

Life cycle of a Chinook salmon

Ms. Rott's class raised Chinook salmon and we raised fall Chinook salmon. One fact that we need to know is to not pollute the water because that can kill the Chinook salmon. Also it can affect the salmon life cycle and they can grow with extra parts or without parts that they need for survival.

The Chinook salmon need fresh water to survive. The Chinook salmon are found in the Klamath/North Coast region, and they can also be found in the Sacramento and the San Joaquin Valley.

Mrs. Grant gave our class 50 salmon eggs and when we released them, 46 of them were released. We are part of the Chinook salmon life cycle and we need to not pollute the waterways. We have to keep the water from becoming polluted. This has to start with us doing our part every day.

The Chinook salmon are listed on the endangered list. They are endangered in the Columbia River tributaries and California breeding sites. The Chinook salmon are threatened in a range of rivers and streams throughout Oregon, Idaho and Washington states.

— Omar Torres, Heritage Elementary School

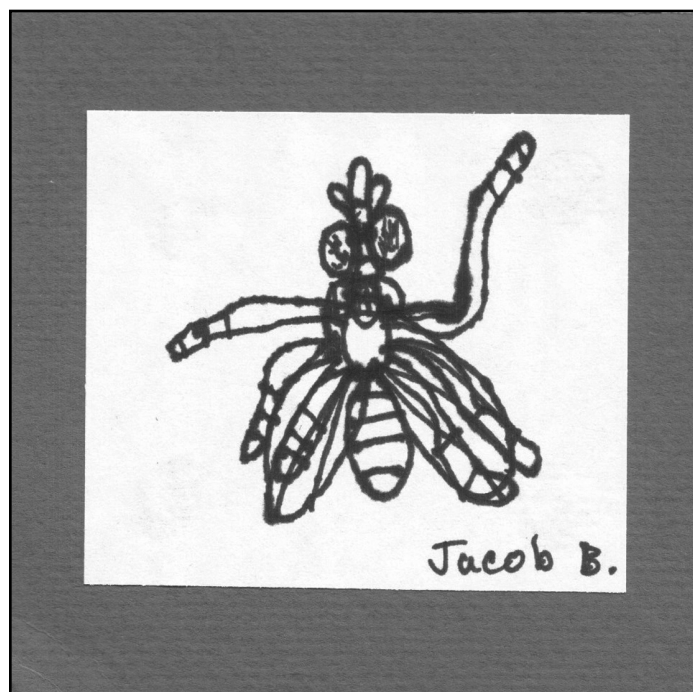
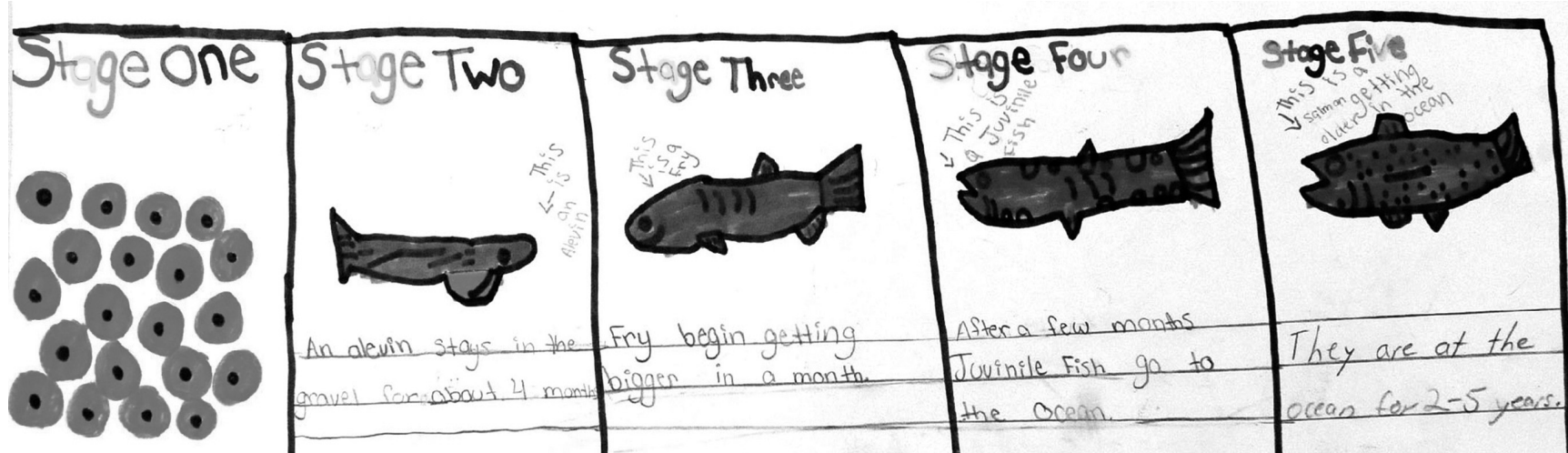


HERITAGE ELEMENTARY SCHOOL PHOTOGRAPHS

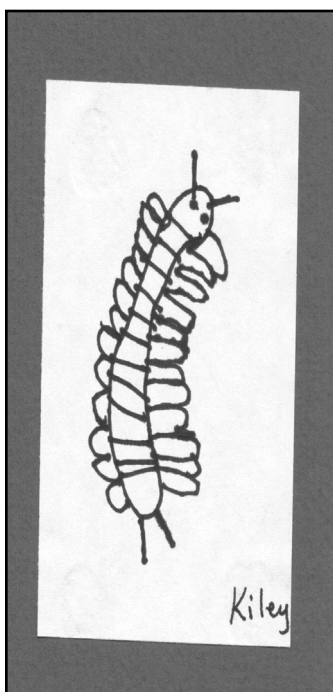
Fourth-grade students at Heritage Elementary School had the opportunity to raise salmon from eggs to young fish. Above: Salmon eggs are tucked among the gravel and rocks in the classroom's fish tank. Below: The newly hatched alevin.



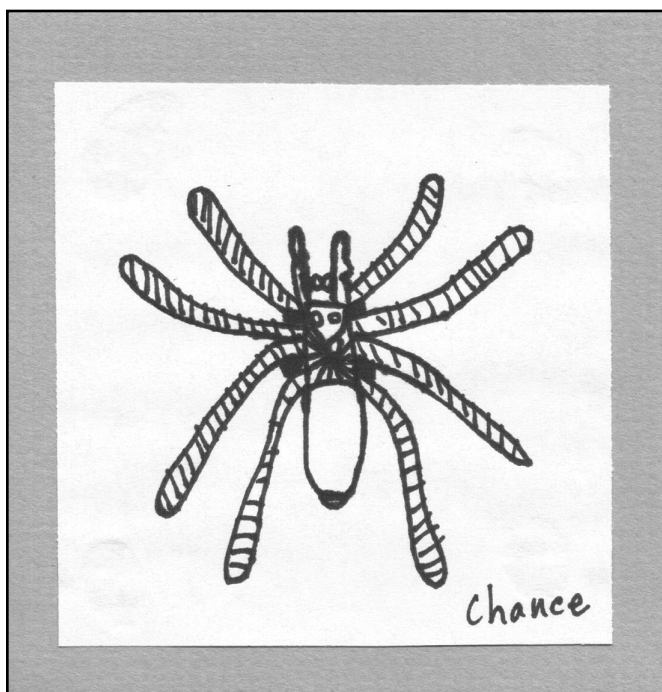
Young salmon, known as alevin, swim at the top of the tank in Mrs. Rott's fourth-grade classroom.



JACOB BERTRAND/VINEWOOD ELEMENTARY SCHOOL



KILEY KAPONEN/VINEWOOD



CHANCE NOWAK/VINEWOOD MIDDLE SCHOOL

By Alexis Baker

LODI HIGH SCHOOL

Out of all of the things we receive from the environment, one of the most important has to be clean water. Without access to water, a human will be dead within a week. But every year, an estimated 2,000 children worldwide die every day due to diseases caused by polluted water. Most of these children are under the age of 5.

Polluted water is a problem in the U.S., too. On average, each person in the U.S. produces about 4 pounds of garbage in a single day. For every 1 million tons of oil that is shipped, approximately 1 ton is spilled.

Every plastic bottle we don't recycle is one more bottle that can end up in our oceans. Once it is in our ocean, it most likely will either end up in the great Pacific Garbage Patch — or an unfortunate fish's stomach. If that same fish is caught and eaten, then the chemicals that originated in the water bottle were transferred into the fish and now into the person consuming that fish.

This is what I like to call the trash cycle.

Like the circle of life, the trash cycle consists of many different stages. The first stage of the trash cycle is pollution. During pollution, things that can be harmful to the environment and especially our water are thrown away instead of being recycled or reused.

The next stage is destruction. During destruction, the pollutants begin to damage our water and other environmental resources.

The third stage is reproduction. Most environmental pollutants can last up to thousands of years before being broken down. This leaves thousands of years for pollutants to build up and be reproduced.

With this seeming endless cycle in full swing many people, including me, wonder what they can do to help out the environment. With all that the environment provides for us, why don't we treat it better? Humans as a species are a direct product of our environment.

To find this out I enlisted the help of Mr. Andrew Richle. Mr. Richle is a certified T5 water plant superintendent. This is the highest level of certification, and it requires years of field work to achieve this position.

I asked Mr. Richle what he believed was most important about his job.

"The water treatment field is extremely important to ensure that everyone receives safe drinking water," he replied.

This statement got me thinking, how can normal people like you and me help out our environment without years of experience?

"Though a degree is not required to obtain certifications, it can be used to substitute some (but not all) practical experience," Mr. Richle said.

What this means is that I could get a job and help save the environment without spending years in school, but I might be able to do more faster with a degree.

Next I chose to ask Mr. Richle what he does on a daily basis so I could get some ideas on what how I might help out. He replied with how he often holds demonstrations to teach schools about water quality and water control, along with monitoring the water quality on a daily basis.

This reminded me of the Storm Drain Detectives, a program in Lodi where local schools team up with water professionals like Mr. Richle and study water quality around town, including at Lodi Lake and the Mokelumne River.

To help out the environment and yourself, make sure to always be water conscious and limit your pollution as much as possible. To find out more and to get involved in the movement, search for Storm Drain Detectives in Lodi online.

Lodi Lake, Mokelumne in art and creative writing



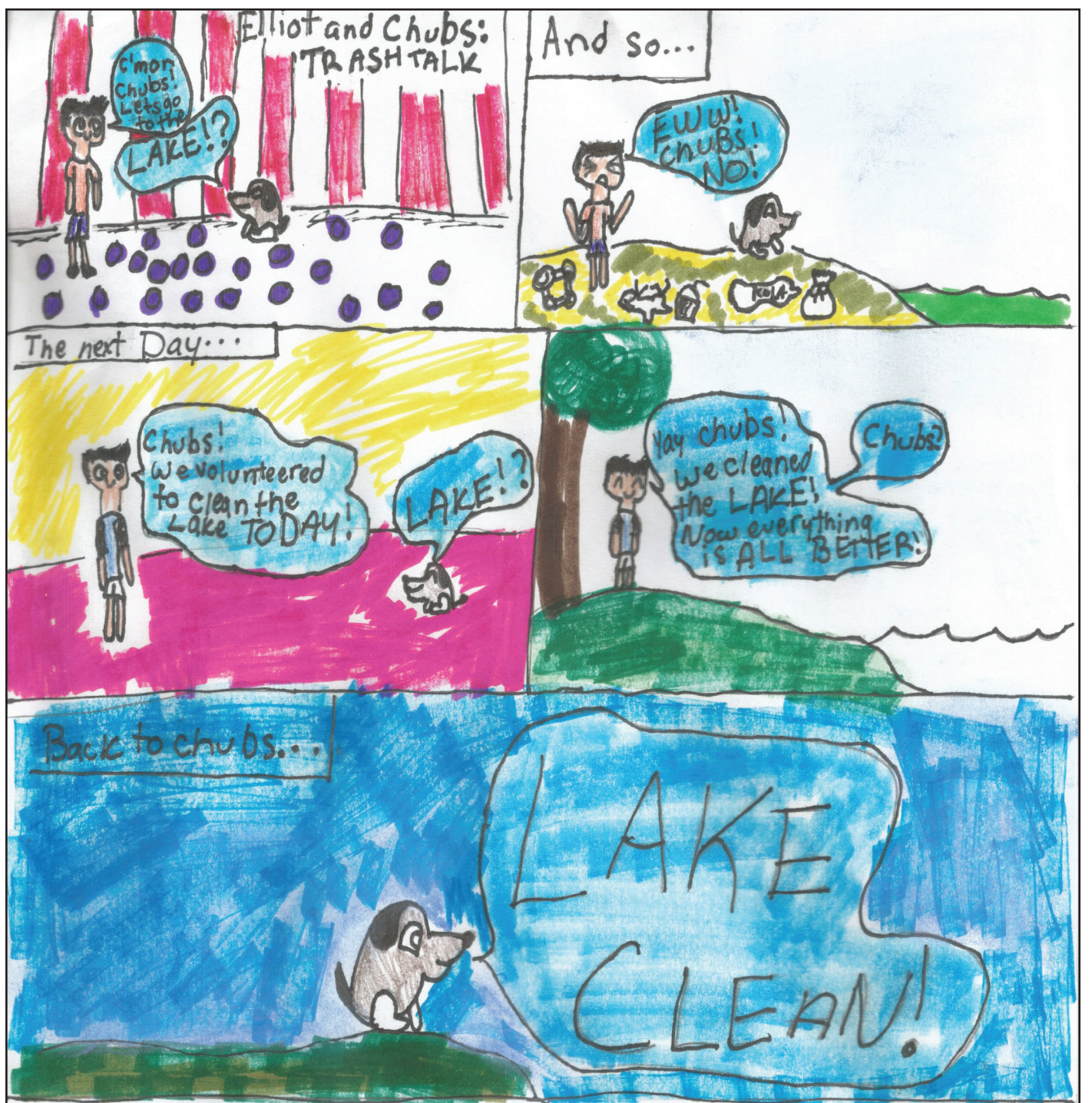
AAMANA KHAN AND ARSA BIBI/LODI MIDDLE SCHOOL



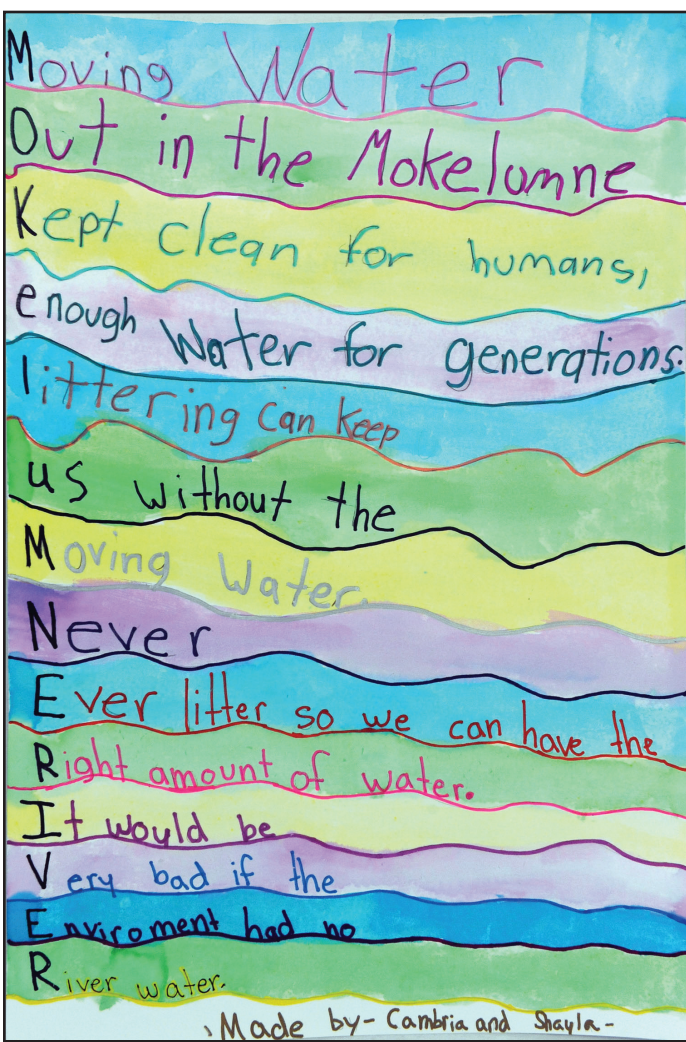
ROXANA PEREZ HUERTA AND AMIRA IBRAHIM/VINEWOOD ELEMENTARY SCHOOL



CRISTINA FARFAN/VINEWOOD ELEMENTARY SCHOOL



MICHAELA WALLIOR/VINEWOOD ELEMENTARY SCHOOL



CAMBRIA WAITES AND SHAYLA BRADLEY/VINEWOOD ELEMENTARY SCHOOL

Short story: How pollution can hurt local duck populations

By Sam Wright
LODI HIGH SCHOOL

I'm a young boy, and hoped you could tell me what's happening. My best friend is dead. Her name was Alex. She was a duck. She died yelling and screaming, and I never found out why. I was on the shoreline, watching her duckling egg — I'll call him Murphy — when I heard him from the water. I rushed over, but it wouldn't do any good; her body was hanging on the surface, face down.

I couldn't bear to see her that way. Just to see her in the water like that, wings stretched, body stiff, face purple without breath, air, or life in it, I screamed in anguish and pain. I

swam out to her and struggled to bring her to shore. The body was heavy and tense. When we made it to shore, I laid her down, and cried, cried for her, and for Murphy, who wouldn't have a mother anymore.

Maybe the plastic, the glass in the water, made her sound out that choking and suffering, but I beg that it did not.

This wasn't Alex's first bad sign. Her feathers started falling out weeks before. It always happened after swimming in the water, which was purple, like her vomit. Speaking of which, she'd get sick, and I can't truly say, but maybe it was because of the cigarette butts on the ground she'd eaten. And not to mention the

fact that the other glass pieces on the ground would break open the webs of her feet, and the blood would keep gushing and gushing.

This is why I took it upon myself to take care of Murphy, be his new parent.

But how could you do this? How could you hurt me? I ask myself these questions in the dark, in the pain.

A few days after Alex's death, duckling Murphy's egg started falling apart. I'd never watched over a duckling before, but seeing it turning dark gray from white didn't look normal. It wasn't until it was pitch black that I got worried. I looked around for other ducks I could bring

him to, but they're gone now: their nests are missing. The trees where they were had fallen, and the roots were black like death.

When I came back to tend to Murphy's egg, I saw what I finally wanted to see: Murphy himself. But I never thought I would see him like this.

Coming back to the nest from a distance I saw yellow: It must've been the body! But the closer I got, the more lifeless the yellow got. Lifeless: That's what he was. I saw his body shriveled up, neck mangled. His eyes were shut. The body looked like it'd gone years without food, without ever getting a taste. Without ever getting to taste life, the swimming, the flying, or even the simple, natural

waddling.

I ask myself the question as I walk, seeing the place I once watched life exist and its beauty. But the way it droops with lifelessness now, it feels like a nightmare where death hangs over. I ask myself these questions passing that sign, reading "Lodi Lake," when I look at the people who come through here, and it all makes sense: it's them, it's the people who killed Alex and robbed Murphy's life. It was them who scared away the ducks, it was them who left nothing. They tossed plastic and glass in the lake and rivers. They left cigarettes and glass pieces scattered on the grass. They destroyed nature's home, and left it here to rot.

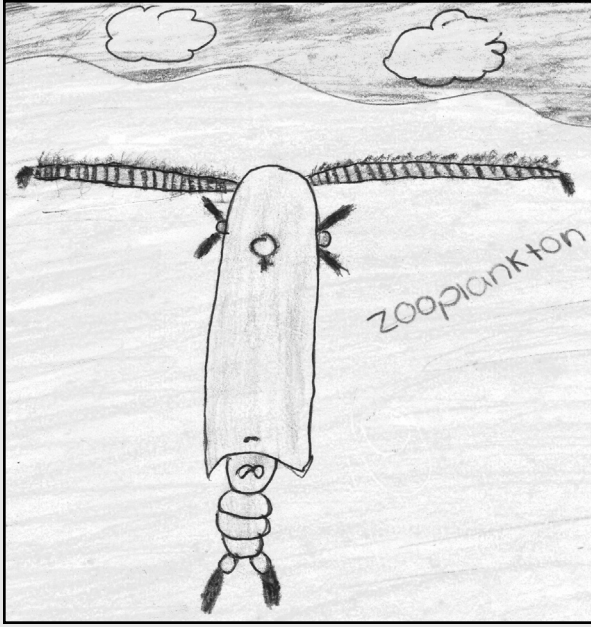
Curt Juran shares volunteer stories

By Darlene Alcaraz and Faatihah Khan
HERITAGE ELEMENTARY SCHOOL



BEA AHBECK/NEWS-SENTINEL FILE PHOTOGRAPH

Master Gardener Curt Juran speaks as Lodi Public Works hosts a dedication ceremony for the River Friendly Demonstration Garden and the Great Blue Heron Bench in front of the post office on School Street in Lodi on April 25, 2015.



What are plankton?

Plankton are the small and microscopic organisms drifting or floating in the sea water or fresh water. Plankton are also divided into three main types: photoplankton, zooplankton and bacterioplankton.

Jellyfish are also plankton, technically they are zooplankton. Plankton don't just live in oceans, they also live in lakes. Plankton make up the first layer in the oceanic food chain.

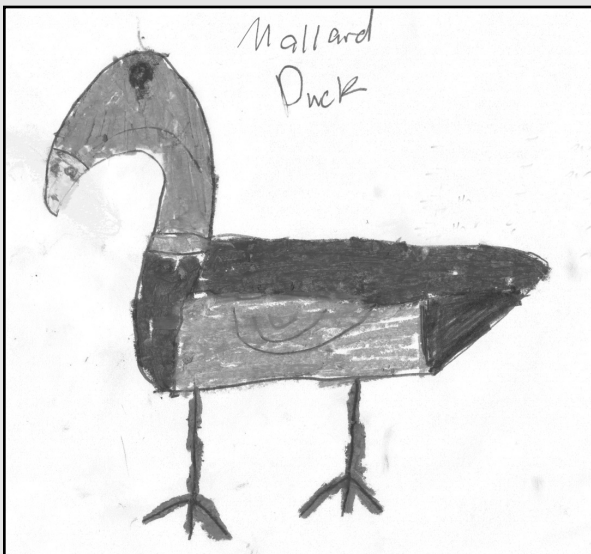
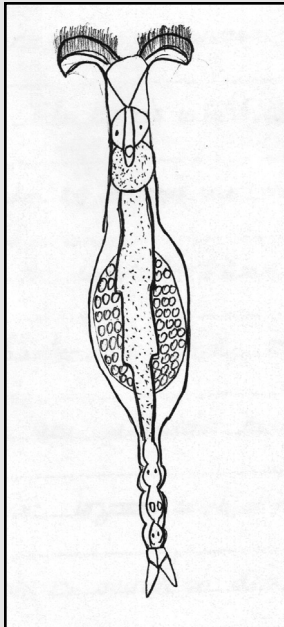
— Valeria Rivas, Heritage Elementary School

What are rotifers?

The rotifers make up a phylum of microscopic and near-microscopic animals. They were first described by Rev. John Harris in 1696, and other forms were described by Antonio van Leeuwenhoek in 1703. Most rotifers are about 0.1-0.2 mm long and are commonly in fresh water environments throughout the world with a few salt-water species.

They mostly are prey for bryozoa, combjellies, jelly fish and star fish. Rotifers are an important part of the freshwater zoo plankton, being a major food source and with species also contributing to the decomposition of soil organic matter. They are living in your fresh water.

— Hector Torres, Heritage Elementary School



IAN BAERSMEYER/LODI MIDDLE SCHOOL

Animal Facts: Ducks

1. Ducks' feet have no nerves or blood vessels, meaning that their feet do not feel the cold. This also lets ducks swim in icy water and walk on ice or even snow.
2. Ducks have webbed feet, acting like pedals under water and making the good swimmers.
3. Male ducks are called "drakes" and females are called "hens." Baby ducks are known as "ducklings."
4. Did you know that the quack of a duck echoes?
5. There are about 40 breeds of domestic ducks, with the most popular being the White Pekin.

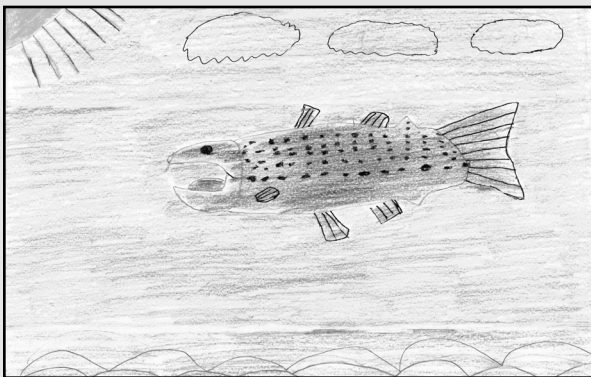
— Katie Kraljev, Lodi Middle School

Animal Facts: Mountain Lions

Mountain lions have a right to go to their real home just like we are at our real home. We could help their home by cleaning our Earth and stop polluting and do more things to help the Earth.

We can decide to keep them in Lodi Lake or return them to their natural environment. Mountain lions are found in Yosemite National Park and in other natural environments around California.

— Jesus Morales, Heritage Elementary School



Animal Facts: Salmon

At the fish hatchery we learned that salmon from the Pacific Ocean come to the Mokelumne River led by their sense of smell. The salmon have fat stored so they can use their fat as a source of energy.

When salmon lay eggs, they first have to build a nest, called a redd. If they don't have a nest they can't lay eggs in a safe place. When babies hatch they go to the Pacific Ocean to eat and grow into an adult salmon. Then they come back to the Mokelumne River to lay more eggs.

— Eriberto Villalobos, Heritage Elementary School

Q: Where did you attend college?

A: I attended Delta College.

Q: What was your career or job title?

A: I spent almost 34 years with the City of Lodi Public Works as a maintenance worker, public works inspector and streets and drainage supervisor.

Q: Why were you interested in working for the City of Lodi?

A: It started off as "just a job" then grew from there.

Q: What were the most rewarding aspects of your job?

A: Trying to keep the environment clean by keeping the storm water as clean as possible and keeping the streets and City of Lodi clean.

Q: What was the least rewarding part of your job?

A: Trying to get work done without enough money in our budget.

Q: Do you do anything to try to support our environment?

A: As a Master Gardener, we practice sustainability. And I volunteer with Storm Drain Detectives and Earthkeepers.

Q: How many years have you been a volunteer?

A: I have been volunteering for five years.

Q: What is an Earthkeeper, in your perspective?

A: Wonderful kids who are responsible and take care of the environment.

Q: Did anything inspire you to help our community?

A: The years I spend with City of Lodi inspired me to give back to the community.

Q: What is your favorite part about the Mokelumne River?

A: Kayaking and looking at all the plants and birds.

Q: Are there any interesting stories that influenced you to work helping the Earth?

A: The first time I was on the Marine Science Institute Discovery Voyage and saw Ms. Jacinto's sixth-graders, and I saw the passion they demonstrated for learning.

Q: Who are some of your heroes and why?

A: Grace Hopper, the first female admiral of the U.S. Navy. She worked on the first computer, UNIVAC.

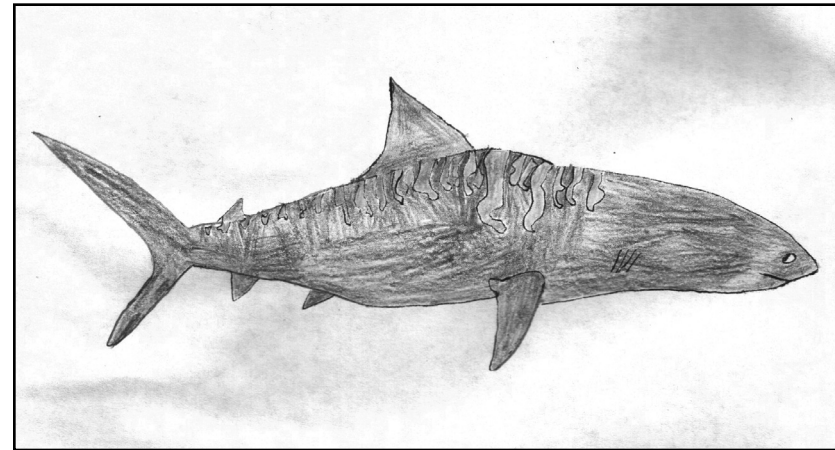
Q: What are some of the future plans for helping the environment?

A: To keep working with Earthkeepers and Storm Drain Detectives.

Q: How does your work with the Earthkeepers benefit students?

A: Because it teaches about the environment and it teaches responsibility.

Animal facts: All about the amazing tiger shark



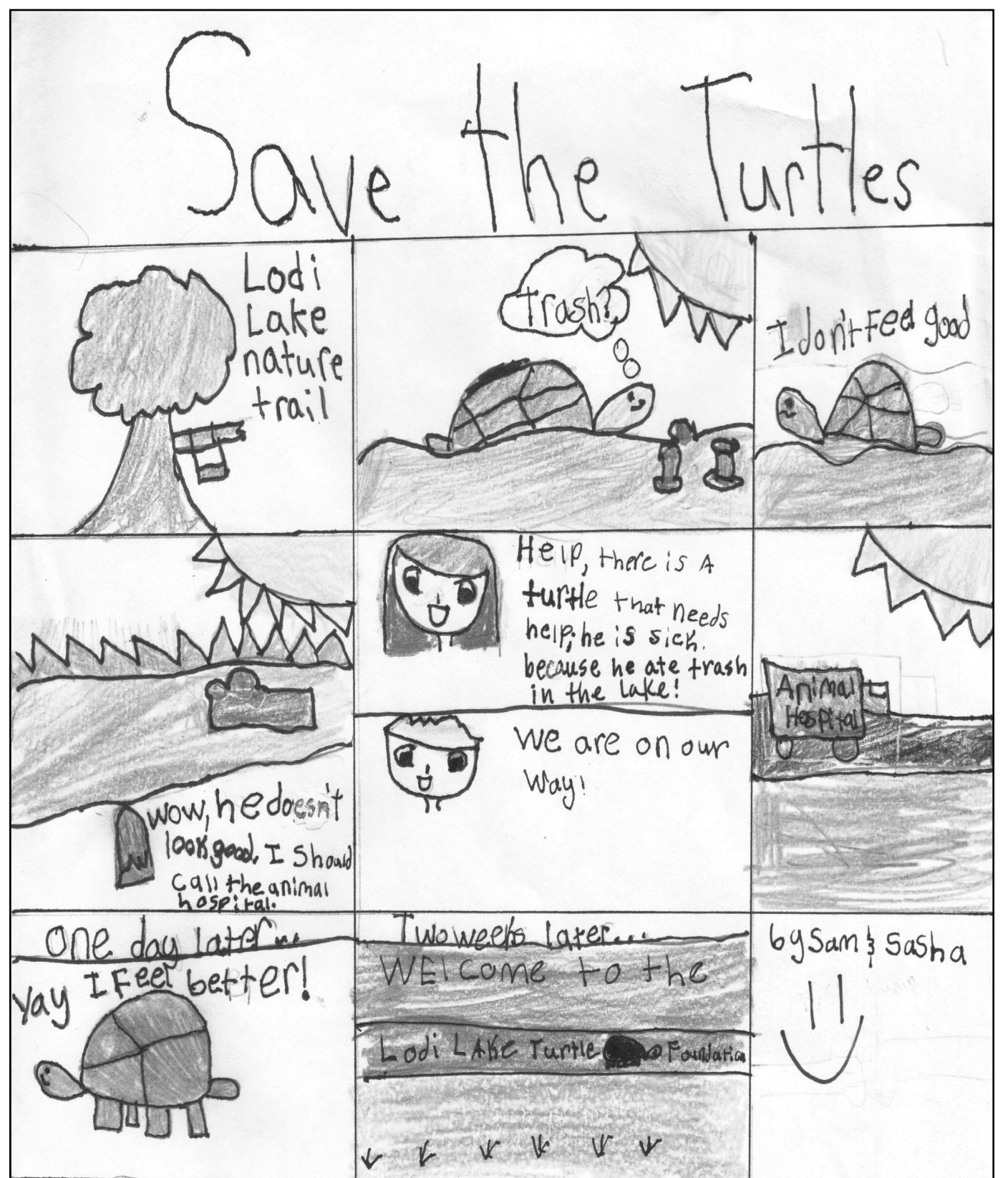
AZMAT KHAN/HERITAGE ELEMENTARY SCHOOL

By Azmat Khan
HERITAGE ELEMENTARY SCHOOL

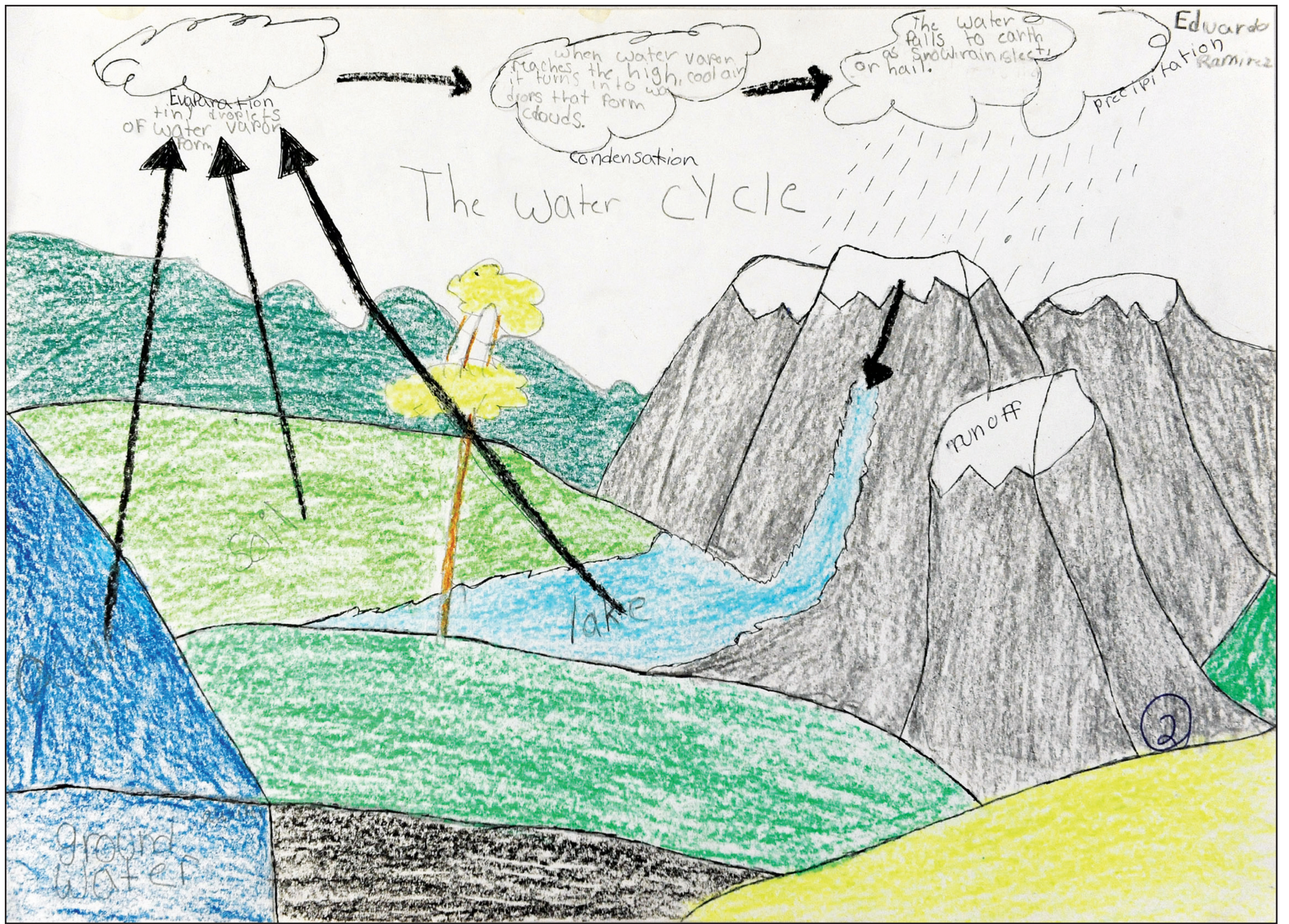
Tiger sharks are amazing animals that live in tropical waters such as the Atlantic Ocean, and Hawaii. But in some people's opinion they are frightening and scary.

Tiger sharks are large. They can grow to be 14 to 20 feet long with an average of 12 feet. Tiger sharks require a lot of space to swim because they are large. They are mostly found in tropical areas like the Atlantic Ocean.

The tiger shark is the fourth largest shark in the world. They are fierce and will eat anything that comes in their way. They feel endangered by humans so that's why they are known to attack humans. They weigh from 850 to 1,400 pounds.



SAMUEL MEYERS AND SASHA RUPERT/VINEWOOD ELEMENTARY SCHOOL



EDUARDO RAMIREZ/HERITAGE ELEMENTARY SCHOOL

Following trash through the Lodi community's watershed

By Kyle O'Ryan
LODI HIGH SCHOOL

A watershed is an area of land that connects waters flowing to different rivers, lakes and seas. A watershed takes water from lakes to other lakes and also to our oceans. Every snowmelt goes from the lake to our oceans. Every piece of trash goes from one area to another, one piece of plastic bag goes to our oceans and affects many organisms and the ocean's health.

One sunny autumn day in Lodi, California, Mrs. Grant held one of her Tuesday afternoon meetings for

the Storm Drain Detectives. Then a student started to think, where does all the water from Lodi Lake come from? Later that night he began to Google for the answer, his questions still not answered!

The next time the student went to the meeting, he asked Mrs. Grant the question. She explained how the water started and how it got to Lodi. She explained that the water started when rainfall started in the Sierra. If it was winter, the rain would be snow, and if it is summer or warmer seasons it would be rain. If it was winter, the snow would melt when it was

warmer weather.

When it was finally warmer weather the rain would melt; this "melted" water would go to streams and rivers. This water would then go to the lake — for example, Lodi Lake! Once it went to Lodi Lake it would be cleaned and then be used for drinking water; after many steps to clean the water so it is healthy to drink. Once the water is used, it will eventually go to the oceans.

Mrs. Grant also talked about water quality and why it is important to clean up after yourself. She explained that one person can affect

the environment. If you are gardening and you spray pesticides, then you need to clean after yourself and not let it go down the drain.

Also, she said that another example was that you need to clean up your cigarette butts, because when there is a Lodi Lake clean-up, there are a lot of cigarettes around. These cigarettes go in the water and then go to the oceans, where organisms are harmed!

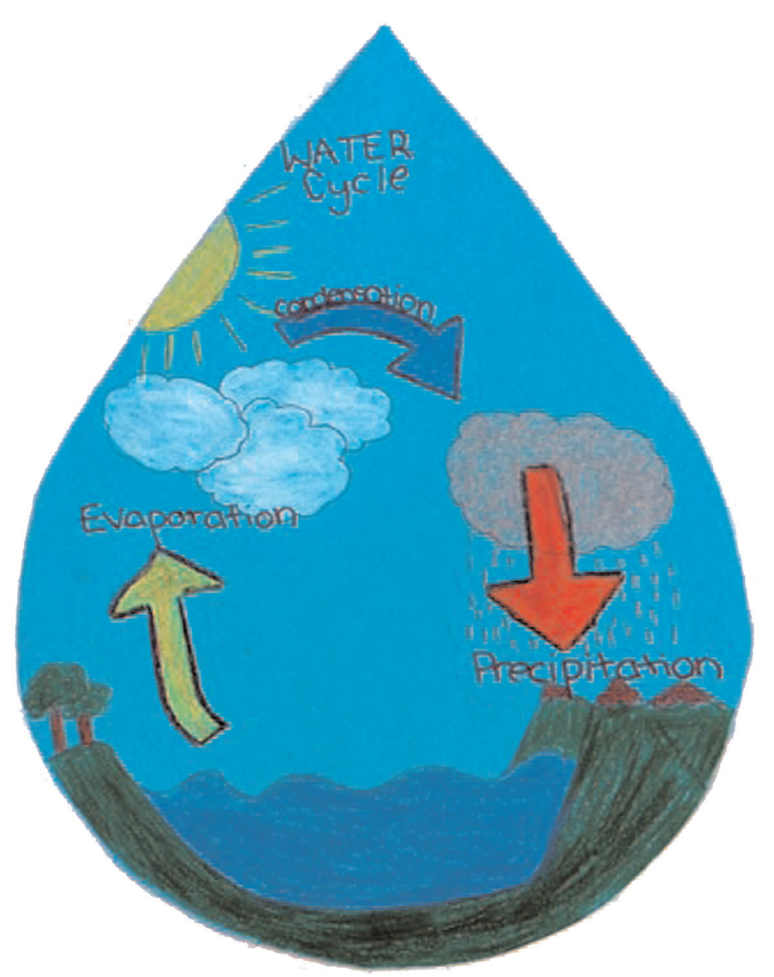
She ended with, "So one cigarette butt dropped into a sewer line in Lodi can end up in the Pacific Ocean." This is why it's important to clean

up after yourself and not let it affect your drinking water and the oceans. Just remember, the water that comes from snowmelt and even rainwater will be in your drinking water! These simple actions of picking up a piece of trash or even recycling will help and affect everyone's life in a positive way.

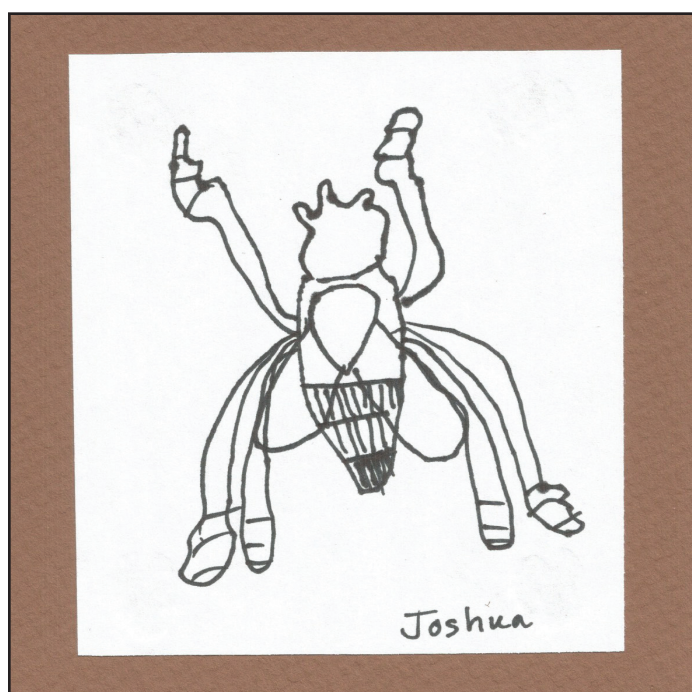
As a community we need to step up to clean our community and our waterway. One simple change can affect our environmental problems we have, as an example of climate change, iceberg melting, and marine animals dying.



JUSTIN ANSELM/VINEWOOD ELEMENTARY SCHOOL



DARLENE ALCARAZ/HERITAGE ELEMENTARY SCHOOL



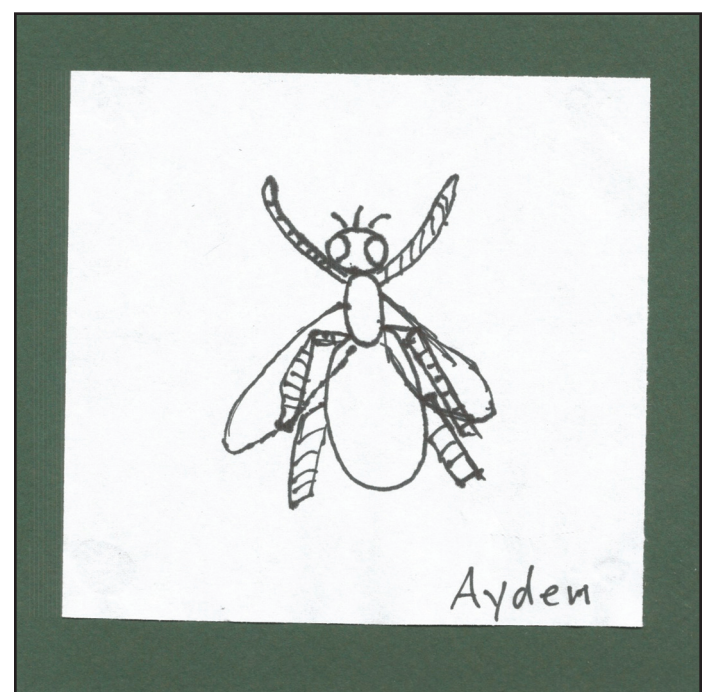
Joshua

JOSHUA ANDERSON/VINEWOOD ELEMENTARY SCHOOL



Hayleigh H.

HAYLEIGH HILLSKOTTER/VINEWOOD ELEMENTARY SCHOOL



Ayden

AYDEN CRAWFORD/VINEWOOD ELEMENTARY SCHOOL