

Mr. Shaddox & Ms. Wong's 6th Grade Team Presents

THE END OF THE WORLD UNCOVERED



THE MAYAN MYSTERY: SOLVED

by Harrison [REDACTED] & Matthew [REDACTED]

The date is December 20, 2012. Tomorrow is supposed to be doomsday. On December 21 the Mayan calendar ends. Many average American people think that since it ends on that day that they must have predicted that the world will end. Others believe that they just simply ran out of room. Will the world really end tomorrow, or not?



This is an illustration of the Green Feathered Serpent Temple.
by Matthew [REDACTED]

The Mayan people live in the lower parts of Mexico. Their civilization began in 18,000 B.C and now continue to live on today. In 18,000 B.C they were small groups of farmers. Then all of a sudden the farmers wanted more land so they expanded, and then all of the farmer's property connected. Because of their expansive

property, they decided to work together and over time they became the Maya.

The Maya is what they called themselves. The word "Maya" has two definitions. One of them is "the power wielded by the gods and demons to create illusions." The other meaning is "the power by which the universe becomes manifest." They called themselves that because they believed they were superior to all people like other Mesoamerican tribes. They had a super advanced civilization with lots of technology. They invented chocolate, and many games. They also had their own way to speak and write. Plus, they were the first people to use the concept of zero.

The Maya were a very religious group of people. They had tons of stories and prophecies. They believed that there were three layers in life. The sky and clouds were the top layer. Then came Earth and land. Then the last layer was the underworld. They believed that something called the tree of life created all three of the layers. In the tree of life the leaves and branches were the sky, the trunk was Earth, then the roots were the underworld.

They also used a lot of tools to win wars and attack, but they also had tools for helpful purposes or to help them survive. Throughout their land the Mayan people fought wars with each other. Even though they shared technology and religion the separate cities still battled each other in war. Although they still fought against other Mesoamerican tribes for slaves and power.

In their huge area of land they had each placed marked. The marks tell them what they could find in that area most commonly. Like some places would have obsidian, others jade and so on. To defend they had many weapons like maces and obsidian blades, even spears. They also used things like rocks to carve and for writing they used ink. They had axes and hoes so they could clear an area and then farm there.

Additionally, they used rocks to refine stone and then build lots of temples. The temples were for religious reasons. They looked like pyramid temples with lots of steps and a little hut on the top. One of the more famous temples is the temple of the green feathered serpent. They believed that on each zenith the green feathered serpent would come out of the temple and bring the gift of water into their well.

Another thing is they had many ways to track time and date. They used the zenith, which is when the sun peaks at its highest point, to tell them what to do with their maize (corn) and crops. On the first zenith, it meant there was going to be rain so they planted their crops. The second zenith meant dry season and the time to harvest their crops. There are only two zeniths a year. Also, astronomers of the Maya could predict a full eclipse even if it was hundreds of years away.

A major accomplishment of the Maya was completing their long count calendar. The long count is 5,000 years. The calendar changed how we think today. Every 5,000 years the big circular calendar restarts, but some people think it ends on December 21, 2012. Others think since the calendar is full they just ran out of room but, a lot of people think

it ends because the Mayans predicted that the world will end on that day. "Many scholars say the prophecy was misinterpreted, however, and was not meant to suggest the end of all time, but simply the end of the old Mayan calendar and the beginning of a new one." Those who believe the world will end tomorrow are wrong. The calendar is a circle and circles never end. The calendar goes on forever. See you tomorrow.

Words To Know

Ze-nith (Zee-nith) - When the sun reaches its highest point in the sky.

Maize (Maze) - Maize is another word for corn.

Proph-e-cies (Prof-a-sees) - A prediction

Man-i-fest (Man-e-fest) - Perceived by the senses, especially sight.



This is the Long Count Mayan calendar. They used this to keep track of time.
by Harrison [REDACTED]

More to the Maya than the Apocalypse

by Sal [redacted], Will [redacted] & Jacquelyn [redacted]

Ikan wakes up before the sun rises in the east and finds his mom and sister already awake making their breakfast of maize, one of the foods that they grow in the fields outside their hut. "You have a big day ahead of you," his mother says, "Today you will pick a new name and become an adult." As he walks out to the field to work he suddenly remembers that, according to his calendar, today is one of the five unlucky days and he is not supposed to work. This is a typical day for a

loom to make cloth. Men wore a loincloth. This was a strip of cloth tied around the hips and passed through the legs. The women wore tunics and skirts or a loose sleeveless dress that reached the ankles. The Maya had advanced trading routes that were used often. They usually traded with different clans. The Maya mainly traded pots, fabrics, spices, stone tools, jade, pyrite, quetzal feathers, cocoa beans, obsidian, and salt. They also traded between other Mesoamerican civilizations, but this was not common. Maya daily life was busy with the responsibilities of farming, making clothing and trading. While Maya citizens worked all day, they also had to follow the laws of the government.

The success of the Maya civilization started with its government. The reason that the Maya civilization lasted for hundreds of years was because the Maya citizens had respect for their rulers. The ruling system was a monarchy. When a ruler died, his son would become ruler. If the leader did not have a son, the ruler's wife would become leader until she had a son. The citizens never rebelled against the government because they believed that the king and priests were descendants of the Gods. The Maya civilization was successful because each class in society followed the tasks they needed to perform to support the whole city-state.

At the top of the class hierarchy was the ruler and his family. Directly below the ruler in importance were the priests, whom the Maya believed had direct communication with the gods in times of need. Below the priests were the skilled laborers like the caretakers (doctors) or calendar makers. Near the bottom of the hierarchy were the townspeople who were responsible for daily life duties when they weren't needed for war. Each citizen had a mandatory time period each year when they were obligated to work for the government. When the city state was at war, the townspeople acted as temporary soldiers. At the bottom of the class system were the servants who assisted the priests and leaders with their duties.

Surprisingly, the Maya were reluctant to kill anyone in war, they preferred to capture prisoners. When at war, the Maya typically fought other city-states. They fought these battles to gain land and power or because of city-state rivalry. When the Spaniards arrived, they wanted to convert the Maya to Christianity so they fought for many years. The battles were unfair because the Spaniards fought with far superior weapons such as muskets. The Conquistadors brought with them foreign diseases such as smallpox and the Black Plague.

The collapse of the Maya civilization is still a mystery, although many people have theories about its downfall. One of the theories concerns food shortage due to crop failure or overpopulation. Another theory concerns climate change, this may have caused a shortage of food or forced the Maya people to change their way of life. The Mayan government helped it civilization to thrive, however equally important were the civilization's religious beliefs and ceremonies.



The Maya territory at the peak of their civilization.
by Jacquelyn [redacted]

Maya boy in the time period 300 B.C. to 900 A.D.

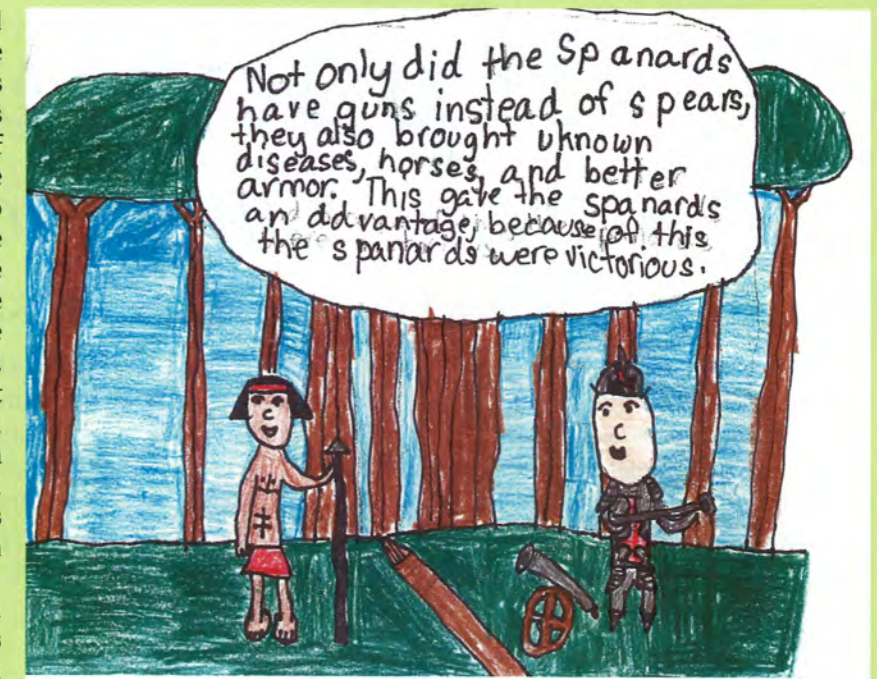
The Maya were an ancient civilization that existed in lower parts of Mexico, El Salvador, Guatemala, and Belize from 300 B.C. to 900 A.D. In the present time Maya descendants live in the same places that they lived 2100 years ago. The Maya daily life involved farming, making clothing, and trading. One method the farmers used was called swiddening. After two or three years of using a plot of land, the soil was too depleted to continue to grow the same crop so the Maya rotated crops. To ready new land for farming, the farmer had to use the slash-and-burn technique of cutting and burning part of the forest to get more land. This technique is still used by farmers all over the world.

The method that the Maya used for weaving has not changed. The present day Maya use a back strap

The Maya culture was centered around its religious beliefs. The Maya gods were very important to the Maya. The tasks such as farming, craftsmanship, and making calendars all were devoted to some form of worship of the gods. The most important god of the people was Itzamana. He was the god of all and also a very benevolent god. Kinch Ahau was the god of the sun and was also very kind. In some Maya city-states Itzamana and Kinch Ahau were two parts of the same god. Although there were protective gods, the Maya also feared cruel gods. Ek Chuah, the god of war, was a very malevolent god, but was also known to help traders and merchants find their way on their travels. Ah Puch, god of death, was a vengeful god. He had evil companions which included dogs and owls which were considered unlucky by the Maya people.

The Maya had many beliefs that affected their daily life. The Maya had a complex process of naming their young citizens which included receiving three additional names through the course of their lifetimes to signify maturity and individuality. Sacrifice was an important part of Maya religious practices. Nightly, families would sacrifice part of their meals to the gods. The Maya performed human sacrifices, usually prisoners captured in war, in a sacred well to try to please the gods. When the Maya had bad weather, they believed that the gods were angry and were punishing the citizens for their actions. The origin of humanity, the Maya believed, began with people made initially of clay and later of wood. The final material the gods decided on for people was corn, which pleased the gods. This explains the importance of corn to the Maya people. Unlike other god-worshipping cultures, the Maya believed that their gods made mistakes, thus it took the gods three tries to make a perfect human. The Maya had a god for each day of their calendar. If a god for that day was cruel, the Maya people believed that only a priest could soothe the god. The Maya worship of the gods led to the development of the advanced technology that they possessed.

The Maya used many technologies that helped them survive. One of the Maya game they played was

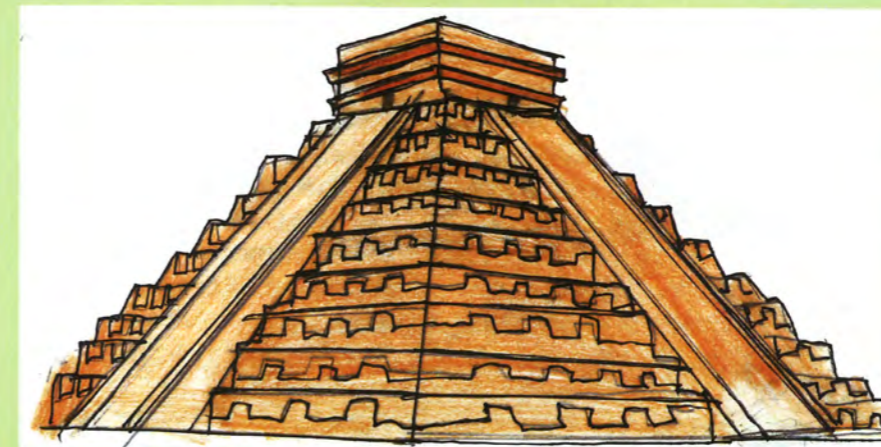


by Will [redacted]

called the pok-ol-pok that they try to knock a rubber ball through a stone ring. The losing team had to give clothing and jewelry. They also liked doing pottery and painting their sculptures. They mostly spent time building the pyramids. Their carvings were done by stone tools but they didn't use metal in the Maya times.

The Maya had an advanced calendar that was used every day. The long count calendar measured long periods of time dating back to the beginning of the Maya era. They called this 4 ahua and 8 curniu, or as we call it today about 3111 BC. This date was when the Maya believed the universe was made. The Maya calendar was developed thousands of years ago, was accurate as the calendar we use today.

Many New Age spiritualists, directors, and authors say the Maya predicted that the world was going to end. Luckily the Maya didn't predict a doomsday on December 21, 2012. They actually predicted that the calendar was going to restart. According to Mexican archeologist, Jose Romero, "The Maya had a cyclical concept of time, not one that ever focused on the end of the world." Even if the Maya had predicted an apocalypse, the world would have ended by now because they did not celebrate leap years.



This temple is from the Mayan city, Chichen Itza. It had nine levels, 91 stairs on each side and one stair at the top. The architecture represents each day in the year ($91 \times 4 + 1 = 365$). By Sal [redacted]

Fun Facts

- The Maya still live on today.
- Throughout Maya history the Maya had no kings. They had strong leaders that had connections to the gods and political power.
- The Maya were one of the first civilizations to use the concept of zero.

Apocalypse

Prophecies Throughout The Ages

by Aaliyah ██████, Yushin ██████, Patrick ██████

Two more weeks to live? What will I do? Where should I go? How will I spend my last moments on Earth. Will the apocalypse really come? Hey! Why is 12/21/12 EVEN the apocalypse? That's so random! This is what's going on in a young boy's head while the apocalypse is coming closer and closer. Most of you know the Apocalypse as 12/21/12. But that's absolutely wrong. The Mayan people

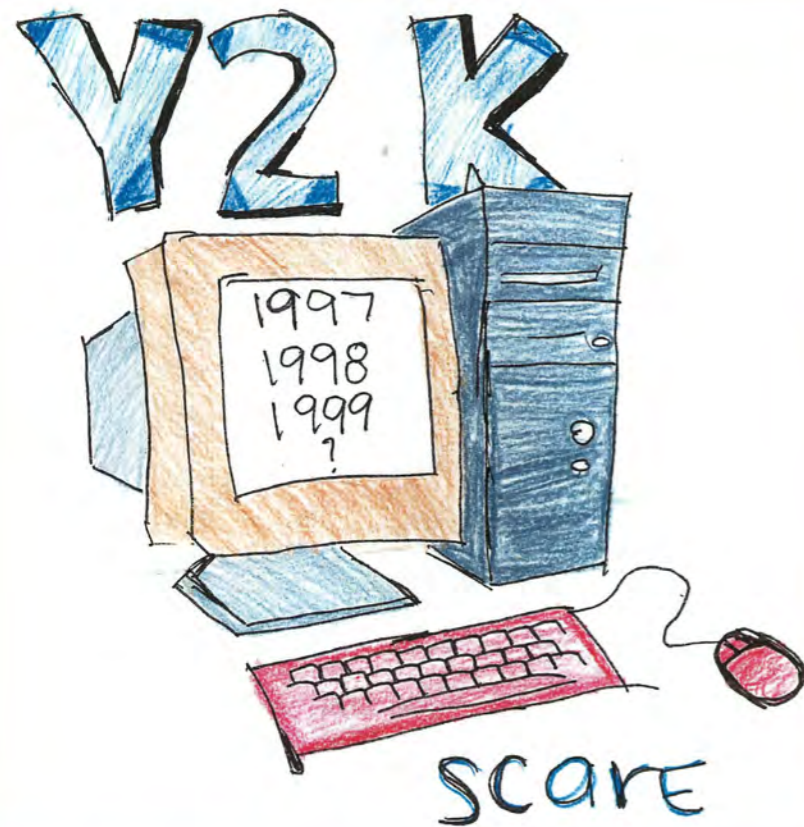
wiped out. The word comes from the Greek word *apokalypsis*, which means Something hidden becoming uncovered. The idea of an apocalypse originally came from a major religion called Zoroastrianism. A lot of people believed that when the world becomes a place too mean to live, a battle would happen between the good and the bad which is called an Armageddon. The word Armageddon is thought to come from the Hebrew for mount of Megiddo. It usually refers to God v.s. Satan. The Nordic armageddon happened between the gods and monsters with the humans in the middle of warfare which caused a cataclysm. A cataclysm is a big event that looks like an apocalypse. The difference between an Apocalypse and a cataclysm is that a Cataclysm is something like a natural disaster that will destroy the world. Cataclysm brings out an apocalypse which would destroy the civilization. A cataclysm is something like an asteroid hitting or a natural disaster like a tsunami that causes a wide scale destruction. Things like diseases are not a Cataclysm since it only kills humanity.

People have thought the world would end in many different times. Some people even used that thought just to make them join the religion. Another apocalyptic event humans thought would happen was the Y2K scare. Your mom or dad experienced the Y2K scare. Y2K stands for Y=year, 2=2, K=1000. The Y2K scare was a computer glitch that was thought to happen on the year 2000. The Y2K scare happened because the computer clock counts the end of the last two numbers of the year like 19[97], 19[98]. Then, it just adds 19 in front of the number. But when it got to the year 2000, the computer thought it was 1900.

But a pandemic that seems like an Apocalypse happened in the 14th century called the Black Death Pandemic. It was one of the most devastating pandemics in history, peaking in Europe between 1340 and 1350. The Pandemic killed between 75 to 200 million people. The Black Death is thought to have started in China. The plague reached Crimea in 1346 and was carried by Orient rat fleas living on Black Rats that inhabited merchant ships. The Black Death reduced 30~40% of Europe's population and reduced the World Population from an

never said a single word about the world ending on the year their calendar was over. They thought a new enlightened, peaceful, great age would start.

The term apocalypse refers to the end of the world as we know it or the end of the civilization. When that happens, the world will still exist but humanity will be



In 2000, people thought the world would experience catastrophes because of a computer glitch. Drawing by Aaliyah ██████

estimated 450 million to 375 million in the 14th century.

Different religions throughout history have made apocalyptic prophecies too. Many Christian people believe that the apocalypse will be guided by the Book of Revelations. The Book of Revelations, often simply known as Revelations, is the final book of the New Testament. It was written in Koine Greek, and the title is made from the first word of the book, apokalypsis. The author of the work indicates himself in the book as John and says that he was on a island called Patmos, when he heard a big voice telling him to write the book. Most modern people say the Book of Revelation was written around 95 AD. The Book of Revelation is the only apocalyptic document in the New Testament, though there are short apocalyptic sentences in various places in the Gospels. Some Christians also believe in the four horsemen of the apocalypse, which are Pestilence, Famine, War, and Death. Islam's believed that Jesus would return to Damascus to kill an Anti-Christ who put the world into chaos. In Judaism, there is no term for Armageddon, but there are references to events that could be compared to Armageddon in the Hebrew bible such as the day of the Lord Cin which God causes death and destruction to those who should be punished. The Native-American tribe Hopi believe that they have transitioned through three worlds up to this fourth world we are in and about to transition to the fifth world. In Buddhism, the apocalypse would happen when the way of Buddha was forgotten. Buddha would come down and wipe the earth clean. The Nordic people thought a war between the gods and the evil gods would happen with the humans in the middle. The gods and monsters destroyed each other leaving only two people and a handful of minor gods. The Egyptian people thought the chaos snake Apophis would come out from the ground and swallow the sun. Then the Earth would be covered in a sea of chaos. As you can see, the idea of the end of the world has been shared by many cultures throughout history.

Many religious individuals have predicted the date of the apocalypse and the birth of the second Christ. The French sage/prophet of the middle ages, Nostradamus, gave us more time than the Mayan Calendar scientists. He said the world was going to end on the year 3790. The prophet predicted not only this but a lot of wars and mass

destruction incidents, such as 9/11.

But really, there were tons of prophecies that were predicted before that didn't even come close to ending the world. Don't worry about the apocalypse, the world will end 6 billion years later when the sun explodes. According



Ancient Egyptians believed in the egress of a chaos snake from the underworld. It would devour the Sun God and cause the end of the world.

by Yushin ██████

Words to Know

- Epidemic: A widespread, contagious disease in a certain area.
- Pandemic: Prevalent over a whole country or the world.
- Way of Buddha: The Golden Rule

to Stev Weidlich, a cultural anthropologist from AECOM in SD California, "In ancient times when humanity only inhabited Africa, there were tons of predators that killed them. So little people were left that you could take all of humanity and put them in Qualcomm stadium." This shows that even after something considered the Apocalypse happened, humanity rose again becoming stronger every time.

Fun Facts

Often times when a group or person predicts the end of the world and it fails to happen, they will switch it to another date shortly after. One example is Warren Jeffs, a leader of a polygamist cult in southern Utah. When the world did not end on December 23, 2012, he blamed his followers for lack of faith. Then, he moved it to December 31, 2012.

Mission: Stop Deforestation

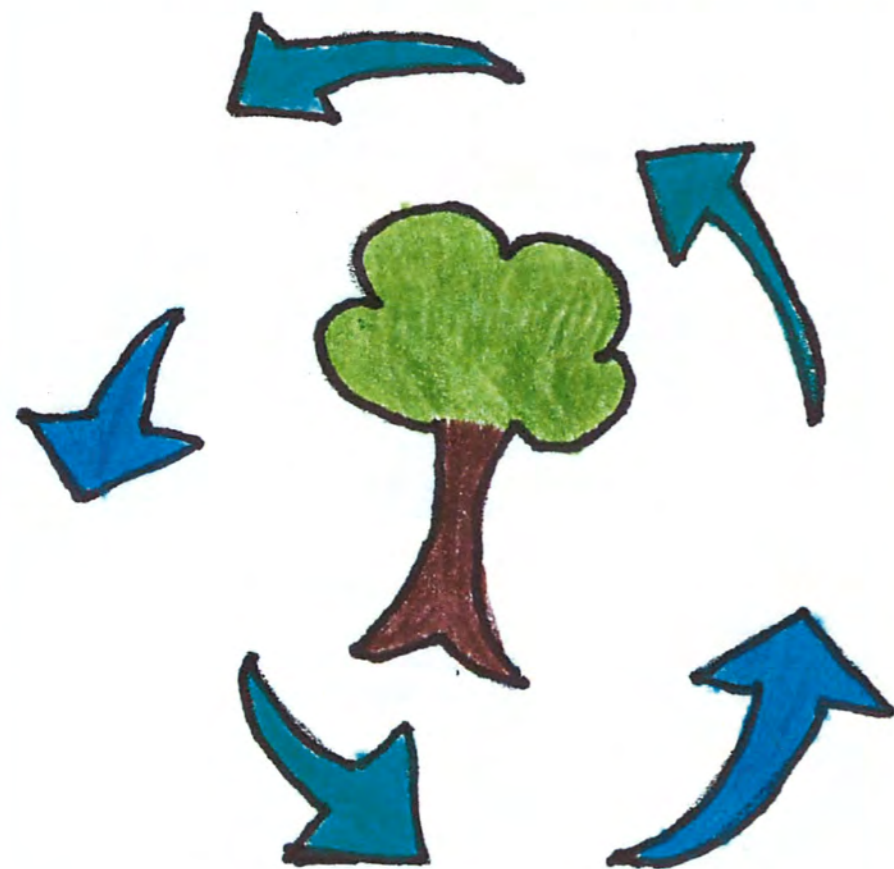
by Chelsea [redacted] & Kassie [redacted]

On the border of Haiti and the Dominican Republic, you can see the difference between a forest that is healthy and thriving and the remains of a forest. On the Dominican Republic side, it is green, you can hear birds chirping, and see trees as tall as skyscrapers. On the Haiti side, it is brown and there are only tree stumps left behind. Jimmy Lee, a development associate at Plant with a Purpose, an organization in

San Diego that researches deforestation, said, "in major places of poverty, their livelihood depends on deforestation so they cut down trees, to make charcoal then sell it for money." Haiti is one of the countries that is the most affected by deforestation because it is an extremely poor country.

Deforestation is the removal of many trees. The main cause of deforestation is poverty. People cut down trees to make paper, firewood, and to expand cities, and for slash-and-burn agriculture, which is when farmers burn large areas to create farmland.

Deforestation can cause many environmental effects, climate effects, and health effects. For example, trees provide homes for natural wildlife. Deforestation contributes to animal extinction because animals are losing their habitats. Deforestation can also cause flash floods and landslides because trees and their roots help keep dirt and soil in their place. Without trees, there is nothing to keep the soil from turning into a landslide. Deforestation also has climate effects because trees breathe in carbon dioxide and release oxygen. When we cut down trees, we lose that natural



This picture shows how trees turn into paper. Then paper gets recycled. by Chelsea [redacted]



Trees are really important to life on Earth because of the process that they go through called photosynthesis. This is when trees use the sun's energy to create oxygen by combining CO2 and water.

by Kassie [redacted]

air filtering system. Last, deforestation is linked to diseases such as diarrhea, typhoid, and other diseases. These can occur because tree roots filter contaminants in groundwater. When we cut down trees, they are no longer naturally cleaning our water and people get sick from drinking the dirty water.

Governments around the world have been finding ways to stop deforestation. In China, everyone over the age of eleven plants three trees a year. Other governments like the U.S. are doing things too. For example, organizations like Plant with a Purpose are working to make people in different countries aware of the problems caused by deforestation.

Deforestation is increasing by the minute and we need to stop it. One thing people can do to help contribute to the prevention of deforestation is to recycle all paper products and use recycled paper. According to Jimmy Lee, "If we didn't have any trees, the world would be much, much different than it is now." We believe that deforestation will not and can not end the world, but the world will be a very different place without any trees.

FUN FACTS

One and a half acres of forest is being cut down every second.

Forests cover over 30% of Earth's total land.

WORD TO KNOW

Poverty: A state or condition of having little or no money or resources.

Synonyms:
Neediness, poorness, privation

EXTINCTION IS FOREVER

by Nahomi, Stella, & Carlos

Out in the cold waters of the North Pole, you spot a polar bear family trying to swim to a nearby ice cap floating in the water. You see the cubs weakly swimming, no longer holding their own weight. They start to paddle slower and you see them slide under the icy cold water, sinking while water fills their lungs, they drown. This doesn't happen to only one polar bear family, this happens to more than 10 families a day.

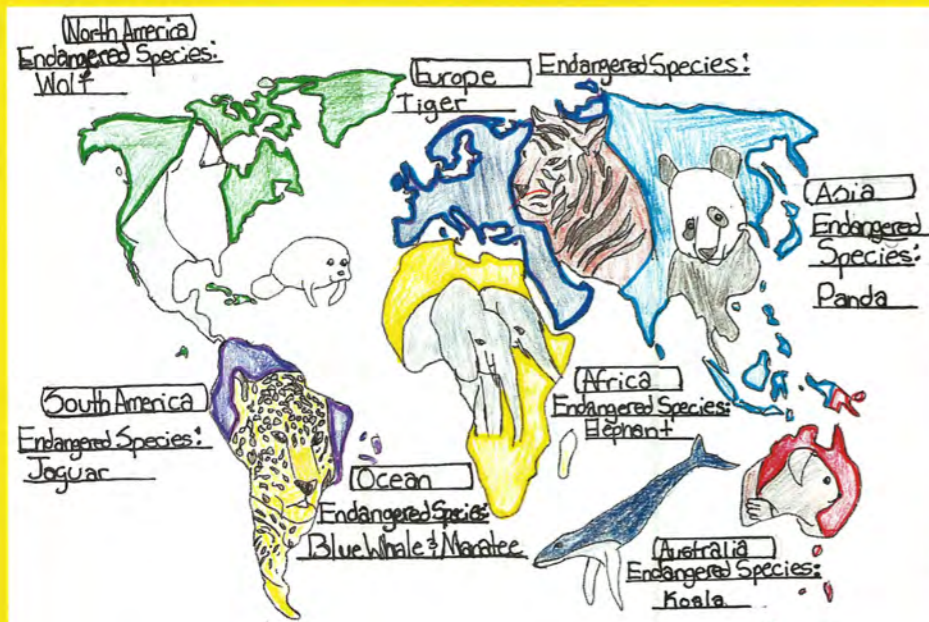
After researching extinction, Stella said, "Until one has loved an animal as part of one's soul, that part remains unawakened to notice how much it matters to the world until one has lost it."

Animal Extinction and Endangered Animals
It's important to understand the difference between endangered animals and extinct animals. Habitat loss, hunting, and the introduction of a new predator or prey are

the ways animals may become endangered. Habitat loss occurs when an animal's home is polluted or terminated. Endangered animals are close to becoming extinct, basically on the road to extinction. Some animals today who are endangered include the polar bear, elephant, panda, leopard, koala, cheetah, wolf, gorilla, and the jaguar.

Extinction is the end of an organism or a group of organisms, normally a species. Some animals became extinct due to the climate changing or natural disasters. Early in history excessive hunting of animals was still being done by people. For example the Tasmanian wolf ate the farm animals of people. To stop the loss of their animals, people shot and scalped the animal. This caused the Tasmanian wolf to become extinct. Some other extinct animals are the dinosaur, mammoth, saber tooth cat, dodo, mastodon, tasmanian wolf, and the megalodon shark.

Speciation occurs when a species is separated from one another. They start growing in different places, eat different foods, and reproduce differently. For example, red squirrels living in the woods are separated by a river. Some squirrels are stuck in the woods, while the other squirrels are stuck on the opposite side of the river. After a few years there will be two species of squirrels. The original red squirrels will exist, but because of the river there will be another squirrel species. This is because in those few years the squirrels ate different foods lived differently, and began to reproduce with each other. They grew in different habitats. The new traits of the new species cause a noticeable



These are some of the endangered species around the world.
by Stella

difference between the two squirrel species.

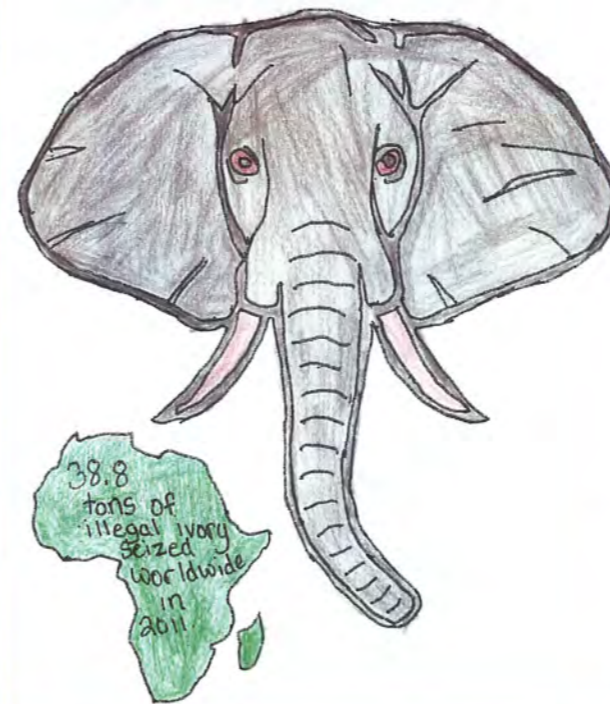
John Santos, a biology teacher at High Tech High International, taught us the following "Animal extinction is never going to stop since each day new species emerge as others go extinct."

Animal extinction is hard to stop. People are trying to repopulate near-extinction creatures with breeding-programs and banning of hunting them. For example bison, once extinct in America due to overhunting, only live in zoos and are on a breeding program to try and prevent their extinction. They are also making their natural habitat a "human free" zone by coordinating the area to prevent extinction due to humans.

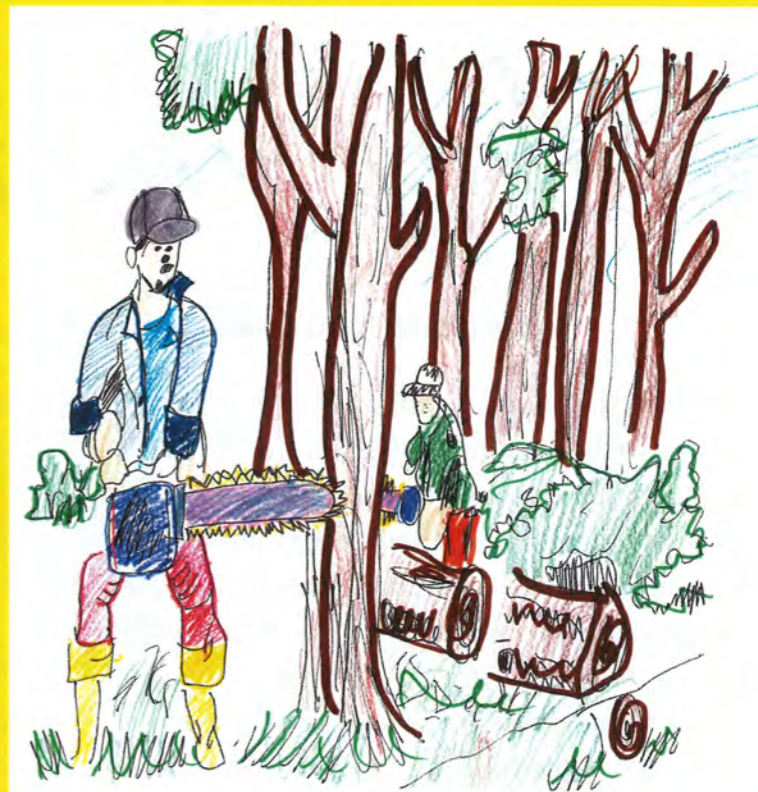
Some steps people can take to stop animal extinction are the following:

1. Learn about endangered species in your area.
2. Visit a national refuge, park, zoo, or other open spaces.
3. Provide a habitat for wildlife by planting native vegetation in your yard.
4. Minimize use of herbicides & pesticides.
5. Recycle.

NO HUNTING



Hunting endangered species causes animal extinction
by Carlos



Habitat loss is a cause of animal extinction.
by Nahomi

6. Decals on windows to deter bird collisions.
7. Slow down when driving.
8. Avoid supporting the market in illegal wildlife including: tortoiseshells, ivory, and coral.
9. Report any harassment or shooting of threatened or endangered species to your local state or federal wildlife enforcement office.
10. Protect wildlife habitat.

These are the ways people can stop this action but this can only be done if people care. Do you care?

Sad Facts About Animal Extinction

Did you know that over the last 20 years, the population of polar bears in the Hudson Bay has declined by 20%?

Did you know that in Asia, ivory is a sign of wealth and elephants, walrus, hippopotamus, and narwhals are the only source of ivory?

Disappearing Animals

By Isabel [redacted], Alex [redacted] & Cayla Joy [redacted]

Each day, the amount of bamboo found growing in the mountain ranges of China is decreasing. Pandas are losing their habitats, their food source, and their lives. There are only about 160 pandas left in the wild. **Animal extinction** is a serious problem in the world. According to John Santos, an 11th grade biology teacher, animal extinction is when a species of animals disappears and never comes back.

We need animals to survive and live off of. We need these animals for food, clothing, and supplies. The problem is that animals like elephants, cheetahs, and more are going extinct and it is already affecting us. Humans, animals, and plants all depend on each other. Without animals, plants might not be able to reproduce as easily. We could end up with an overpopulation of certain types of plants. For example, if bees went extinct, plants wouldn't be able to pollinate and grow. This would affect humans because we need plants for food, medicine, and oxygen.

Another example of how overpopulation affects the food chain is the Grizzly Bears,

which are an **Endangered** species. If Grizzly Bears go extinct, salmon would get overpopulated and soon their food supply will get so low that they will starve. When that happens we won't have salmon to eat any more.

In some places like Texas and Minnesota, people build land on Grizzly Bears' habitats. The people and the wild Grizzly Bears do not live peacefully together. When people see Grizzly Bears on their land, they get scared so they kill them. Grizzly Bears have the same reaction and also have killed or injured people. Now there's only about 125,000-150,000 Grizzlies left.

That is where the problem starts. Some people are killing these animals, for unnecessary needs like food, shelter or clothing, but for money is illegal. The people that hunt these animals are called **poachers** and they kill animals and sell some of their body parts on the black market. Sometimes the mother is killed, and she can no longer take care of her offspring and they usually die of starvation.

According to Mr. Santos, "Speciation is when one species gets separated and makes another species." That makes more species, but



This is an example of a food chain or animal extinction step by step. by Cayla [redacted]

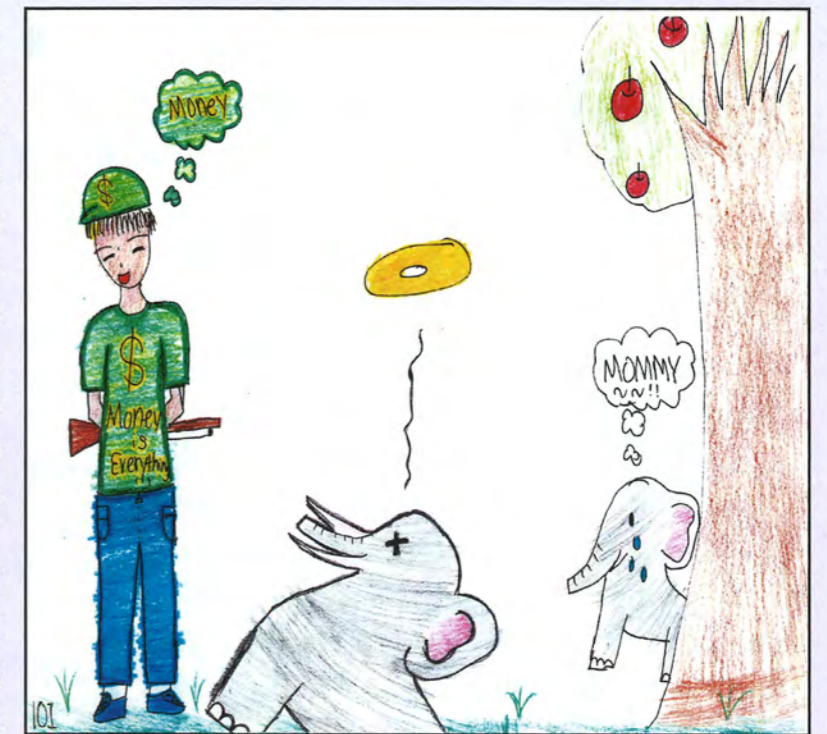
they die faster due to the cause of extinction. For example, if there was a group of squirrels and some of those squirrels got stuck on the other side of a river they would become a different kind of squirrels." The squirrels living on the other side of the river begin to adapt to their new environment, they become a whole new species. Speciation is when, the environment changes, and one species becomes two different species. Speciation is good because more species are being made every day.

Personally, we do not think that animal extinction is going to end the world. Animal extinction is something that has happened in the past, but did not cause the end of the world. Sometimes animals that have gone extinct can be found again. For example, the pink-headed duck went extinct in the 1950s, but was rediscovered in 2011!

To help with this problem you don't have to do anything big. You can do something small like throwing away your trash so you can prevent animals from choking and polluting their environments. We can also write to the government about poaching and deforestation. It's important to be aware of this problem so that we can protect endangered species and help make sure they exist in the future.



These are some animals that are endangered. by Isabel [redacted]



A poacher killed this baby elephant's mom. Alex [redacted]

FUN FACTS

You thought that only you need sunscreen? Pigs, walruses and light colored horses are prone to get sunburned.

Flying frogs change color in the day. They are greenish-blue in the sunlight and green in the evening. At night they're black.

Anteaters protect their long claws by walking on their knuckles. this makes them look as if they're limping.

Bats eat all types of food. there's no restriction where their diet is concerned.

The hippopotamus' skin is protected by its own pink oily secretion known as 'pink sweat'.

A beaver can hold its breath for 45 minutes.

Humans vs. Animals

by Rayelle [redacted] & Keara [redacted]

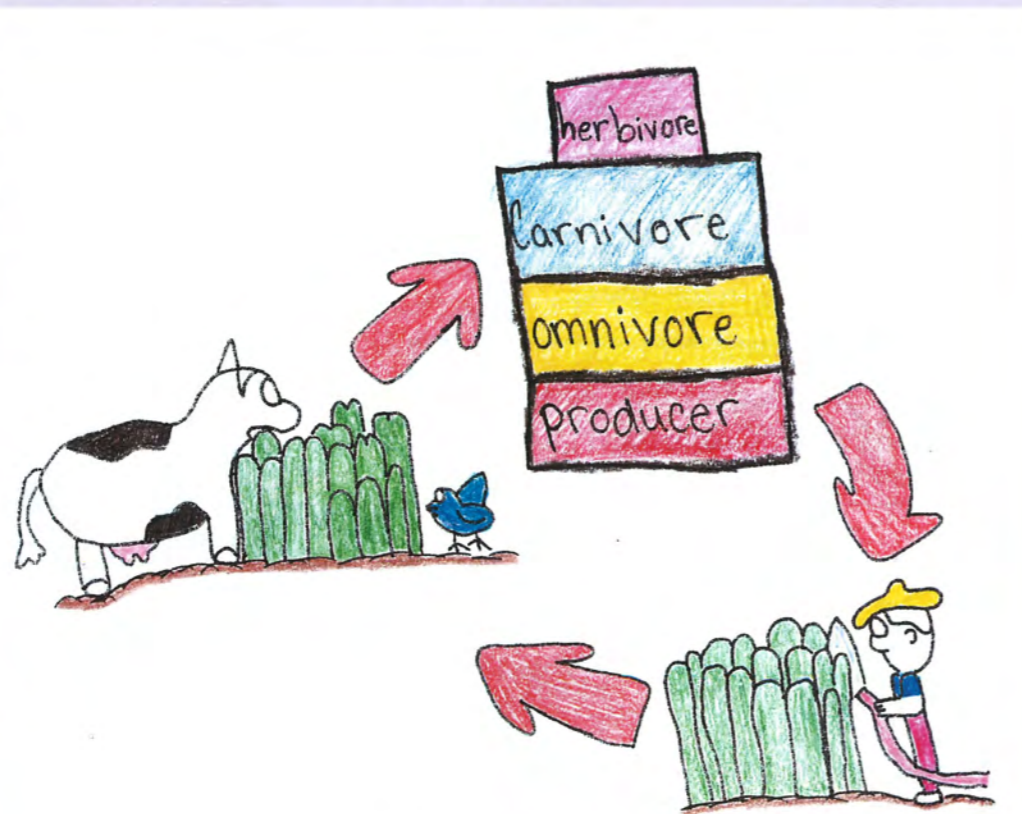
Bullets are flying everywhere! In a vehicle close by, three men with large guns are moving fast in pursuit of a lion. The lion is scared for it's life, as it runs from the people who threaten it's life. There! The animal sees an opportunity to escape! The animal quickly makes a sharp turn and heads toward a grassy brush. If it could just reach the brush the hunters wouldn't be able to track him. Then all of a sudden...boom!

Many lions just like the one above run for their lives in the Savannah of South Africa. The hunters of these gracious animals are called poachers. These people illegally hunt animals like lions for their fur, bones, and skin. These criminals trade and sell animals parts to make lots of money. Unfortunately African Lions have been targets of poachers for years. In the past 40 years the population of African Lions has shrunk from about 200,000 to around 20,000 today.

We interviewed John Santos, a biology teacher at High Tech High International, who knows about animal extinction. We asked him what is animal extinction. He replied, "It's when a type of species dies out."

He began to explain that if four lions were to die, it wouldn't mean that they're extinct. But if the whole population of lions died then they would be completely extinct. According to the World Wildlife Federation "...extinction is a period of time when the birth rate is lower than the death rate of a species."

Things that lead to extinction are poachers, pollution, and loss of habitat. Extinction is happening all over the world. More and more animals are dying because people are intruding onto their habitats, and hunting them for their fur. If something isn't done animals such as lions and elephants could be victims of animal extinction. Anywhere between 2,000 and 100,000 species of animals go extinct each year. Because of this, our



How do pesticides affect the food chain?
by Keara [redacted]

planet is experiencing a very serious biodiversity issue.

Pollution & the Food Chain

We all belong to a complex system called the food chain. The food chain is a very detailed, interlocking series of dependencies that life forms have on each other and their environment. Many factors can affect the food chain. However the most threatening cause of extinction is pollution. Pollution can hurt animals because of acid rain. Acid rain drains into streams and rivers where animals such as fish, frogs, and birds live. Other things such heavy metals, PCBs, dioxin, and other deadly chemicals are dumped into the waters. These materials have the ability to kill off animals that live in waterways. This event happens daily, and is occurring all over the world.

Pollution occurs in water and also on land. Farmers often use pesticide to prevent insects, pests, and bacteria from



If one part of the foodchain goes extinct, species at the top can die from starvation.
by Rayelle [redacted]

Words to know

Pesticide - A chemical for killing insects and weeds.

Period - The amount of time

Habitat - Where an animal lives

Biodiversity - The variety of life in the world

Acid Rain - Is rain that is unusally acidic

Poachers - People who hunt animals illegally

destroying their crops. If a cow ate the plants that have the pesticide chemical on them they could become sick or die. Humans eat parts of the cow for food, so many people feel farmers shouldn't use pesticides.

According to Cynthia Sass "Organic foods are richer in nutrients. This means they improve satiety and naturally help regulate body weight...Plants produce antioxidants to protect themselves from pests like insects and to withstand harsh weather. When they're treated with chemicals such as pesticides, they don't need to produce as much of their own natural defenses, so the levels are lower." It is important for people to should educate themselves about issues like pesticides to protect the food chain.

OVERPOPULATION

People vs. Planet

by Kayla [redacted] & Simran [redacted]

Imagine not having water for weeks, not having food for many days, and wearing ripped clothes. This is how some people live. Sad right? How would you feel if you lived like that? Marian Starkey says, "How we define overpopulation is when people outstripped their resources that are available to them." Marian Starkey is from an organization called "Population Connection". According to Starkey,

in 1950 the population was around 2 billion and in 2000 the population was around 6 billion! Today the population is estimated at 7 billion people or so.

Overpopulation is more about **carrying capacity** than the numbers alone. Carrying capacity is the supportable population for a particular place. Overpopulation has been more on a local scale. For instance, Yemen is having a problem with water **scarcity** because there are too many people in the

desert. There isn't enough clean water for them. 200 years ago, the population exploded because around that time there were many improvements in medicine, **sanitation**, and nutrition. More adults lived longer and more babies lived long enough to become adults.

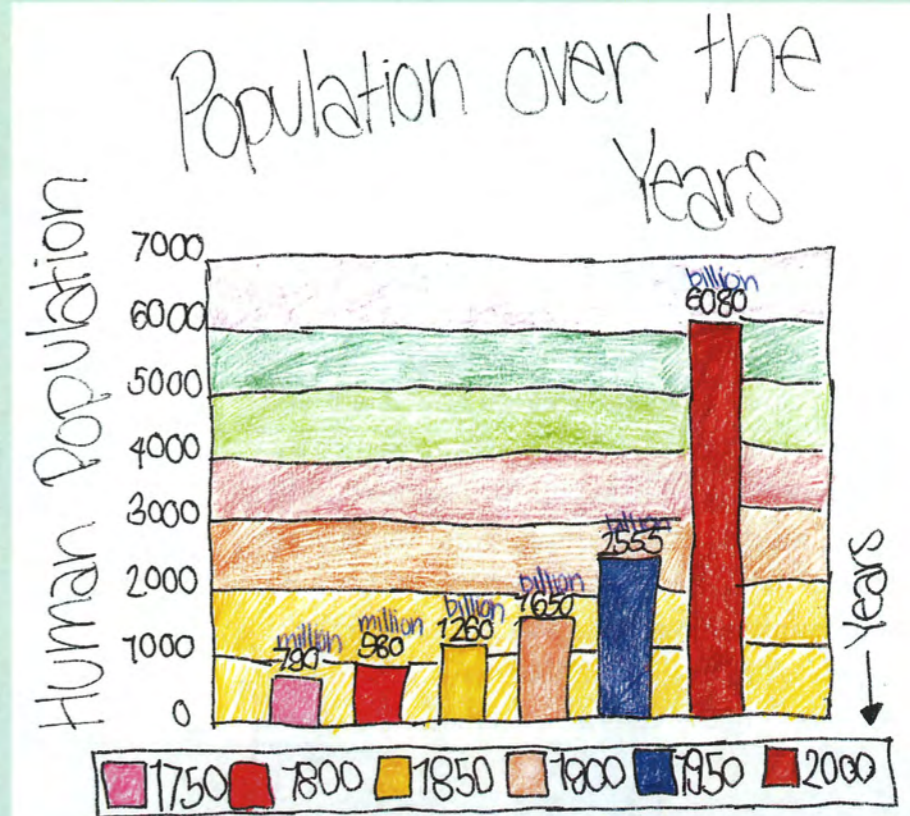
Worldwide governments are trying to help the situation of overpopulation. The U.S. government has been funding family planning for over 40 years. In 1965 the presidential administration got really worried because they realized that the population was growing really fast. They started a program through the



The real problem is carrying capacity, rather than the number of people on Earth.
By Kayla [redacted]

U.S. Agency for International Development, or the USAID. They started funding birth control for countries all over the world. They are sending experts to different countries who have really high rates of overpopulation growth. This agency is also teaching medical professionals in other countries how to use birth control and family planning. The UN or United Nations has made a plan just like the USAID, called The United Nations Population Fund or UNPF. The USAID and UNPF work in about 180 countries around the world.

Could overpopulation end humanity? Or even the world? There are ways to reduce the rate of overpopulation. So, go and tell someone about these growing problems or help families who are having a hard time in their lives with funding family plans. If you're not up for doing big things for this problem, then you can just reduce your water usage, electricity consumption, and stop over-packaging factory products. Recycling is



This shows the world's human population over the course of 250 years. Do you see how the population sky-rocked from 1950-2000?
by Simran [redacted]

also something you can do to help. We can also use different kinds of energy sources like solar power and wind power. "Most adults I know don't think about this problem," says Starkey. If you do help, you won't be only helping others, but yourself. We'll all be one step closer to a healthier planet.

Words To Know

Carrying Capacity - the maximum number of people that an area can support without undergoing deterioration.

Sanitation - the prevention of disease and by the control of sanitary conditions.

Scarcity- a small amount of supplies food, water, etc.

IT'S WAR!

by CJ [redacted], Evan [redacted], Nick [redacted]

Imagine walking on the remains of a land that was once peaceful, though now destroyed. Parts of the ground still ablaze from bombs that were recently hurled at you. You're surrounded by the residue of one thing, War. Many brave soldiers who have sacrificed their lives for their countries freedom have gone through this tragedy. A man named Tom Crosby, a docent who works at the Veteran's Memorial Museum, has gone through this tragedy because he was a prisoner and survivor of World War II. Even after being imprisoned he joined the military because he survived and lived by the saying, "Their weakness became my strength." War is a human misfortune that has happened since the beginning of civilization. Some would say it's as old as time.

War is a disagreement between two or more countries that can not be resolved in a peaceful way. The beginning of this form

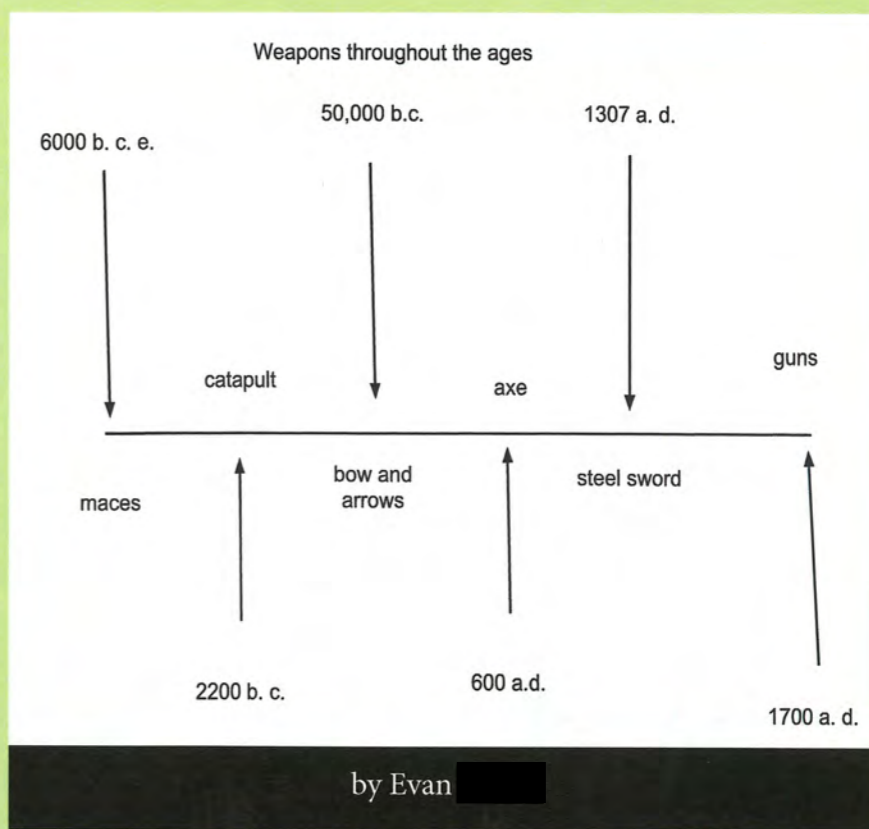
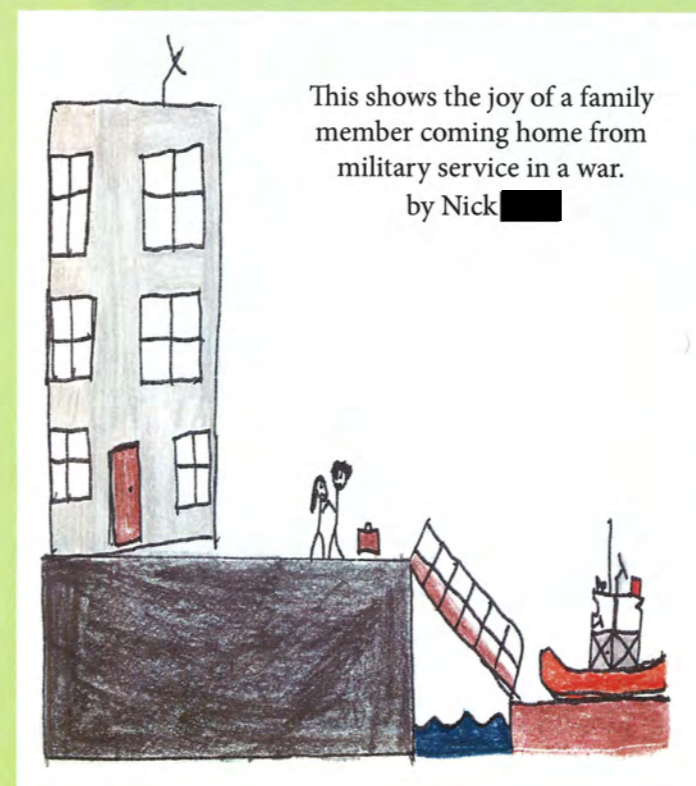
of human conflict is known to have started in Mesopotamia, a region where the world's earliest civilization started. The first war started due to the emperor, Sargon, wanting to extend Akkadian territory. He built a new capital named Akkad now known as modern day Baghdad. Sargon was also the first leader to have a permanent legion of troops. He used his troops to start wars with fellow cities.

Now war has turned into a gruesome battle that some people believe will result in the end of all living species. An example is when hijackers flew planes into the Twin Towers in New York City on September 11, 2001. This is also an example of terrorism. Terrorism is an act of terror or violence with the intention of frightening an enemy. Terrorism is a problem that is trying to be resolved. It's resolving little by little ever since Seal Team VI, a team of highly trained military operatives, assassinated Osama Bin Laden on May 2, 2011. The United States and some European nations continue to try and end terrorism, a slow and hard wait.

War's mostly evolved in it's weaponry. In the years of B.C they had more melee weapons like knives, clubs, spears, and javelins. Also their combat was usually fought on a battlefield. As our technology progressed, fighting had more sneak attacks and attacks on civilians with guns, grenades, tanks, and aircrafts. Though, these weapons don't even compare to a nuclear device. You might think how could a country own a nuke without there being a war? Actually many countries own nukes like

United States, Russia, Britain, France, China, Israel, India, and Pakistan. United States, Russia, Britain, France, and China may own nukes but they are signatories to the NPT (Nuclear Non-Proliferation Treaty) meaning that they will not use their nuclear devices. The signatories of the NPT are also trying to decrease the amount of nukes. Israel, India, and Pakistan have actually been developing nuclear devices breaking the treaty. North Korea and Iran are rumored to own nukes but it's not certain if they really do.

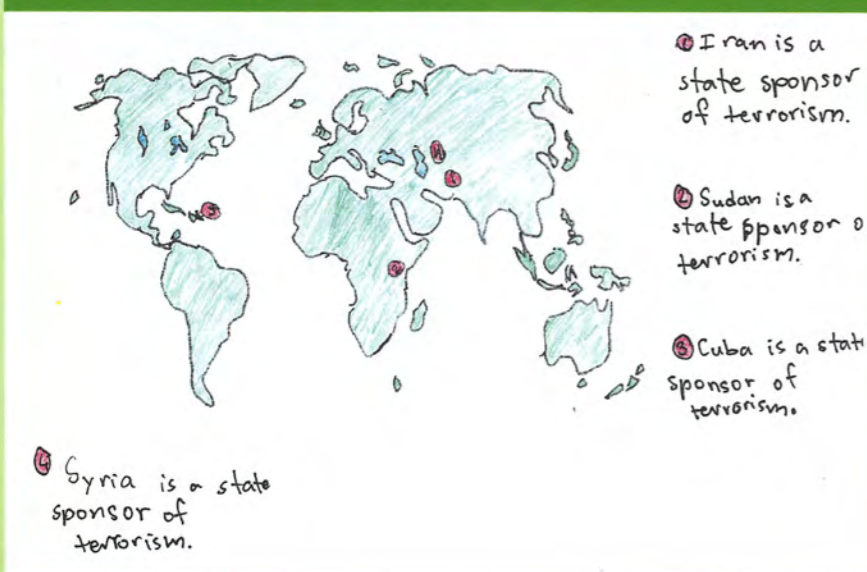
When you think of war what comes to mind? Many people would answer death or weapons. These answers are thought of without a second doubt because it's what we think war is like. War is more than just death. It's an experience, a soldier's perspective. War is not only a hard time for the soldier, but for the family of the soldier also. Tom Crosby, who was once a civilian prisoner of war in WWII and a soldier in The Korean War said, "appreciate everything"



including your family this is because a family member is leaving to a place where they are most likely going to be highly injured and where the odds are against him, but there is something you can do to comfort a soldier in need. You can donate to the U.S.O. a corporation that allows you to donate to soldiers and loved ones. Your donation doesn't need to be an item it can even be a 'Thank You'.

Fun Facts
 The shortest war was 38 minutes long!
 The longest war was 116 years long!

This shows a map of states that have sponsored terrorism by CJ [redacted]



Too Much Heat!

by Miguel [redacted] & Angel [redacted]

A scientist stands on the deck of a research vessel in the Antarctic Ocean and peers out across the frozen sea. All around him, fields of ice are breaking down. Animals, like polar bears and walrus, are left stranded on icebergs adrift in the ocean. This is a result of possible global warming. Over the last fifty years, the temperature has been rising in the Antarctic Peninsula. Many scientists hypothesize that Greenhouse Gases are affecting the Earth because of a rise in Carbon Dioxide.

According to *Antarctic Melting* by Michael A. Sommers, "The carbon dioxide works like a sponge to absorb heat from the earths surface. This natural greenhouse effect helps to make the earth warm enough for life to exist. Problems occur, however, when too much Carbon Dioxide is produced."

Polar ice caps can cause many problems in our world. The major problems that ice caps can cause are a rise in sea level, which could also cause floods and loss of land. 30 years ago, Greenland's land was almost covered in ice. Now, more than half of that ice has melted. This has caused sea levels to rise. Here in San Diego, we could be affected by a rise in sea level also. In *San Diego's Changing Climate: A Regional Wake Up Call*, a magazine written by the San Diego Foundation, it says "Along roughly 70 miles of coastline, rising sea levels will have a major impact on the San Diego region's environment and economy." Other effects of the melting polar ice caps are loss of habitat for animals like polar bears. With their habitats literally crumbling into the ocean beneath them, polar

bears are drowning and losing their homes. The warming of the world rises temperatures and could cause droughts and can create health hazards for elderly and infants. Plants and animals would also be affected by the increase of heat.

The solution to this problem is not easy. It is going to take a change in our lifestyle. We will need to use energy more efficiently. We need to limit the amount of cars on the road. You can help by taking the bus or trolley, carpooling or riding your bike instead of driving. If people do not make a change, the polar ice caps may melt completely.



A stranded polar bear fights for his life because the rising temperatures have destroyed his home.
by Angel [redacted]

Photo Gallery: Interviews & Field Trips

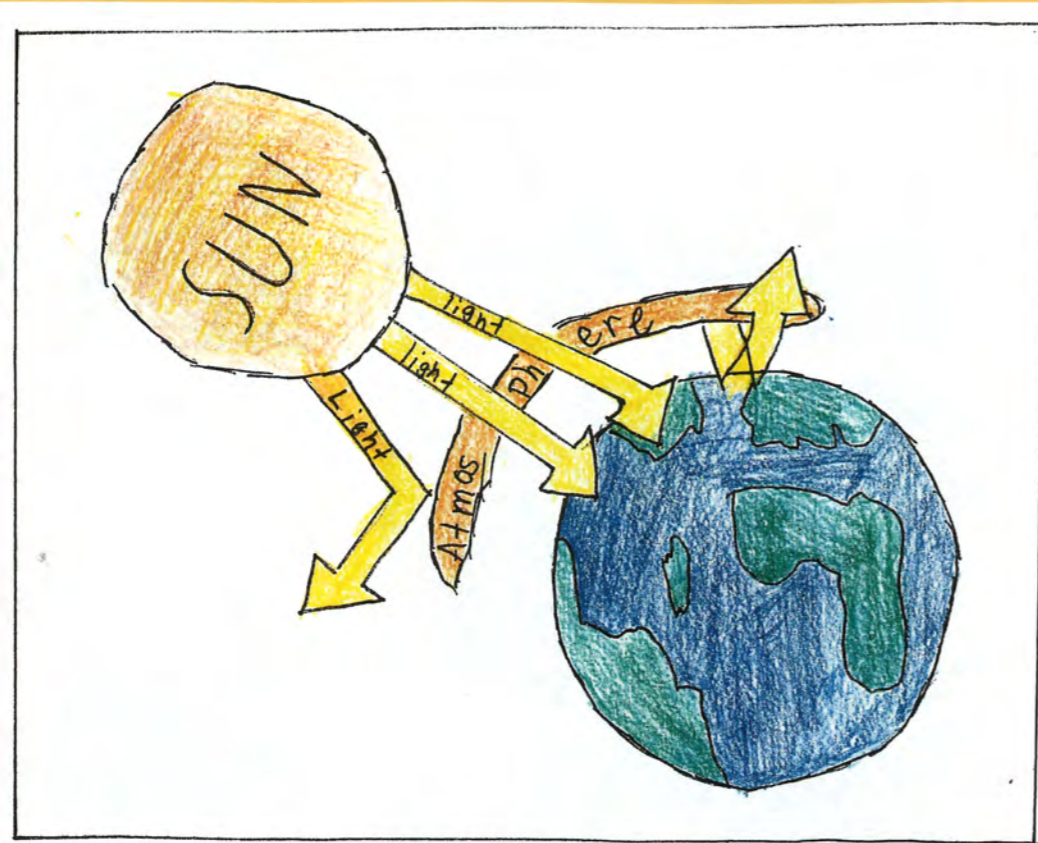


Polar Ice Extinction?

by Carlos [redacted] & Raphael [redacted]

30 years ago, 60 percent of Greenland was made of ice. Since then, 97% of Greenland's ice has melted. At first, scientists were not concerned because typically the melted ice refreezes. But now they are worried that this is not part of a natural cycle. Closer to home on the North American Continent in Alaska and Canada, in 1984, when one looked out to the ocean one would see frozen waters that looked like they go on forever. But now one sees small pieces of ice floating in the deep sea. Where has the ice gone? What happened to it? Will the ice ever come back? Is it the end of the world?

In the past century, the temperature has risen one degree fahrenheit. You might think that one degree fahrenheit isn't a lot, and it actually isn't. But, this one tiny degree can cause serious effects. For example, Alaska usually has



In this picture you see how the atmosphere (composed of greenhouse gases) traps some light inside the earth. This causes the Earth to heat up.
by Carlos [redacted]

temperatures around 30 degrees fahrenheit. If the temperature just rose one degree fahrenheit, the temperature would be 31 degrees fahrenheit. Since water freezes at 32 degrees fahrenheit, some of the ice will start to melt. It is possible that the temperature will continue to rise. If the temperature rises one degree fahrenheit more, the ice melts even faster because it is exactly the freezing temperature. The ice caps are like mirrors because the sun's rays bounce off the ice caps and back to space. With the melting ice caps, the rays can't be reflected back

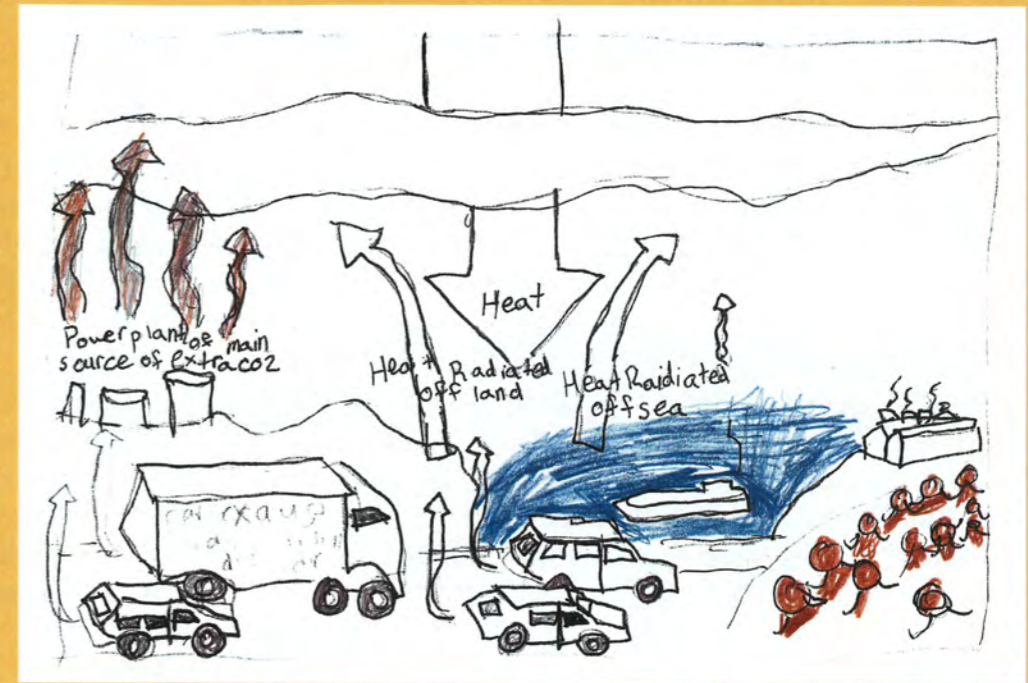
into space, and instead they are stuck on Earth. This is one of the many effects of global warming.

The world must act fast. The government is helping by cutting down greenhouse gasses, but we must do our part, by knowing what global warming is. Greenhouse gasses cause heat to get caught inside Earth's atmosphere. They are called greenhouse gasses because they work like a greenhouse. The the glass traps the hot air inside the greenhouse like greenhouse gasses trap hot air on earth.

Atmospheric concentrations of water vapor, carbon dioxide, and nitrous oxide, all greenhouse gases, trap heat near earth's atmosphere and cause global warming. According to the National Geographic's Website, "Average temperatures have changed around the world since 1880, much of this is in recent decades. The 20th century's last two decades were the hottest in 400 years and possibly the warmest years in history."

Many scientists have been debating for years, trying to answer one question... can global warming end the world? Some scientists say that it can end the world because the ice melting

is causing sea level to rise and that causes cities to flood. Other scientists say that this rise in temperature is part of a natural cycle and the earth just needs to be hotter. Dr.



This is how humans affect the environment and make global warming even worse.
by Raphael [redacted]

Roder from San Diego State University said, "The thing that worries me the most is that scientists don't know what's really going to happen." Personally, we believe that global warming won't end the world but might drastically change how we live.

WARM FACTS

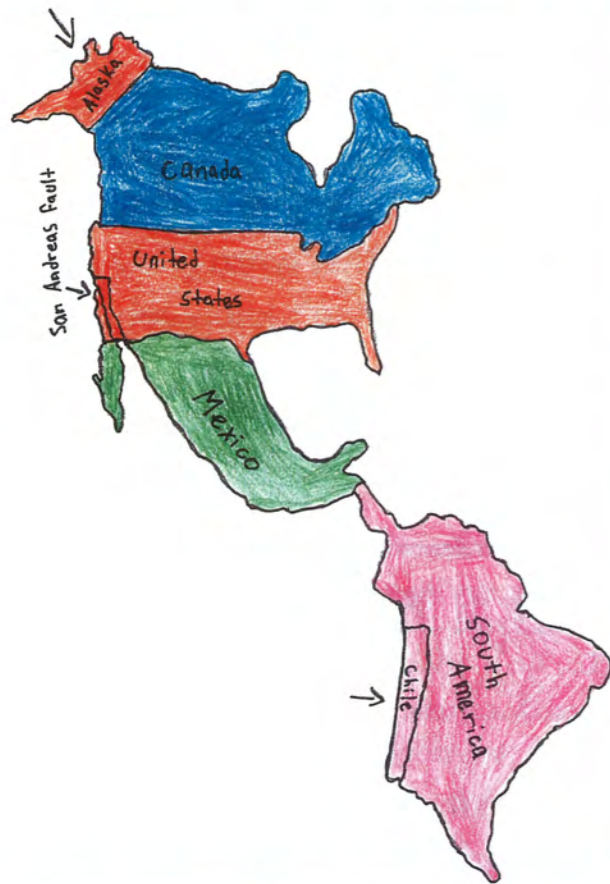
Did you know that global warming could cause more hurricanes?

Since the early 20th century, the average surface temperature of the Earth has increased by 1.4 °F. Two thirds of that increase occurred in the last 30 years.

Shaking Disasters

by Andrea [redacted], Bobby [redacted] & Harle [redacted]

Shattering glass windows, the ground rumbles, shakes and destroys buildings like pencils being snapped in half. What is happening? 10,102 killed, 17,053 missing, 2,777 injured. This was the effects of an earthquake and tsunami in Japan in 2011. This earthquake that hit Japan was the biggest earthquake in the world, a 9.0 on the richter scale. According to our interview with Phil Farquason a geologist he explained, "We don't want to stop earthquakes because tectonic plates are moving all the time, and on the Earth's surface they lock up. Earthquakes can be one of nature's most dangerous natural disasters.



The top three places on Earth that are most likely to suffer heavy damage from earthquakes, due to their proximity to major fault lines.

by Bobby [redacted]

They can cause structures to collapse, people to die, and more deadly effects. Earthquakes happen when the plates at the bottom of the earth grind against each other then cause the earth to move causing an earthquake. Tectonic plates are part of the earth's crust and the uppermost mantle. There are eight major tectonic plates. An earthquake is a shaking of the ground caused by the breaking and movement of large sections of the Earth's outermost crust. Earthquakes happen along the faults of the tectonic plates. According to Wikipedia, a fault is a planar fracture or discontinuity in a volume of rock, across which there has been significant displacement along the fractures as a result of earth movement. The plates move when the mantle below the plates heats up and causes convection currents. These currents move the plates, which sit on top of the mantle.

Earthquakes have different types of waves that cause damage that can ruin a city or town. Seismic waves are types of shock waves that vibrates through and under the surface of the earth. Seismic waves causes an earthquake. There are three different kinds of waves, P waves, S waves and surface waves. P waves are waves that move faster than the other waves and are a type of elastic wave, which is called a seismic wave. S waves travel at a right angle. Surface waves are the third and slowest type of waves and are the most dangerous waves. Geologist measure seismic waves using a seismograph.

Luckily for us, earthquakes can't end the world. They can however cause a lot of damage. We can't stop earthquakes from occurring because the tectonic plates below the Earth's surface are moving all the time. However, it is important for people to know what to do if they are caught in an earthquake. According to ABC News, you can follow these steps in order to best prepare yourself if you are in an earthquake.

If you're indoors you should take these

steps:

- 1) Drop to the ground and take cover. Get under a sturdy table or other piece of furniture, and hold on until the shaking stops.
- 2) If you can't get under something, cover your face and head with your hands and crouch in an inside corner.
- 3) If you're in bed, stay there. Cover your head with a pillow.
- 4) Doorways are not great places for shelter, even though emergency managers used to recommend them. They're a good option if debris is falling and you can't get anywhere else.

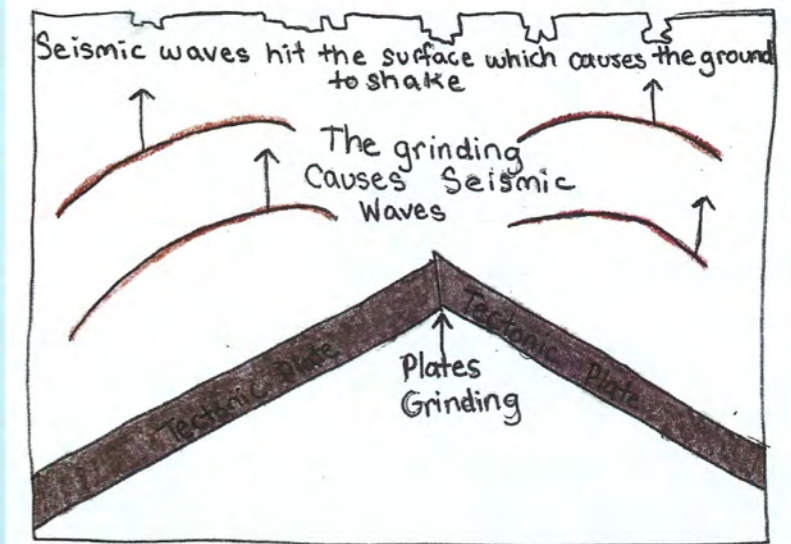
If you're outdoors you should take these steps:

- 1) Stay there. Stay away from buildings, power lines, street lights and other things that could fall on you.
- 2) People are rarely injured by the actual shaking of an earthquake. Instead, falling debris is the greater danger.
- 3) If you're in a car, try to ease to a stop, preferably in an open area away from buildings, trees or overpasses.



Surface waves, P-Waves and S-Waves are created by earthquakes. Surface waves are the most dangerous. Both San Francisco and Japan have been hit by these.

by Harle [redacted]



Plates grind together to form three different types of waves.

by Andrea [redacted]

Charles Richter, a seismologist, which is a person who predicts earthquakes, created the Richter Scale in 1935. It measures the magnitude of earthquakes. Phil Farquason, quoted Charles Richter and said that "only fools, charlatans, and liars can predict earthquakes."

Deadly Facts About Earthquakes

In 2004 an earthquake happened in the Indian Ocean close to Sumatra, Indonesia and caused a tsunami that killed over 283,000 people in 14 countries.

An earthquake in January 2010 in Haiti, with a magnitude of 7.0, killed over 250,000 people.

Here Comes Another Hurricane!

By Jordan [redacted], Tionna [redacted] & Mahanai [redacted]

Hurricane Sandy hit New York on November 5, 2012. This was a devastating moment for many families. Many houses and buildings were destroyed. People lost power for several days and they couldn't contact families to see if they were okay. A hurricane is a large tropical storm that carries only rain and very strong winds. Hurricanes occur when warm ocean water mixes with cold air. The warm air that comes from the water rises and the cold air forms clouds. This mixture is what causes the cyclone. The eye of the hurricane is made of the

THE STRENGTHS OF A HURRICANE

Hurricanes are measured by categories based on how strong they are. The first category is a hurricane with winds of approximately 60-80 mph. During a category one hurricane, it would only break branches off trees and cause power lines to fall. The second category has wind speeds of approximately 80-100 mph. During a category two hurricane, houses would blow down, chimney and roof tiles would break off and also small trees would be blown over. A category three hurricane has wind speeds from 100-120 mph. This type of

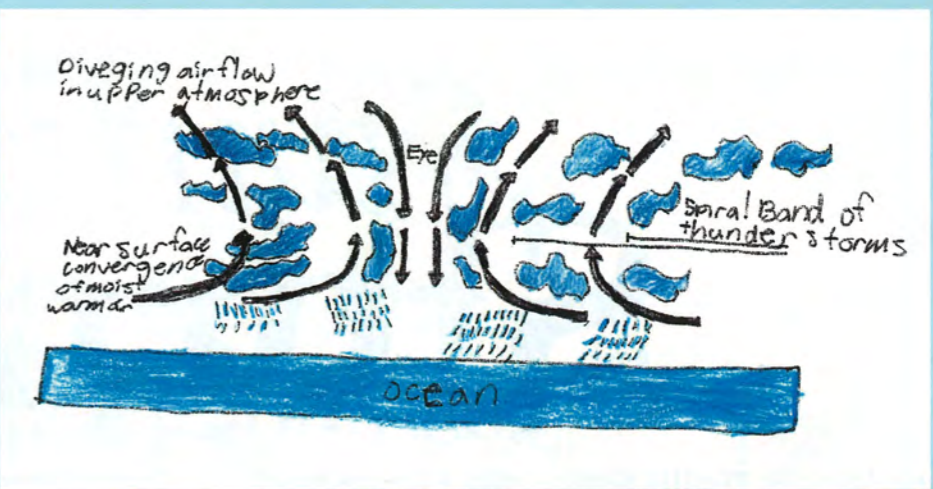
| Category | Wind Speed (mph) | Damage at Landfall | Storm Surge (feet) |
|----------|------------------|--------------------|--------------------|
| 1 | 74-95 | Minimal | 4-5 |
| 2 | 96-110 | Moderate | 6-8 |
| 3 | 111-130 | Extensive | 9-12 |
| 4 | 131-155 | Extreme | 13-18 |
| 5 | Over 155 | Catastrophic | 19+ |

by Mahanai [redacted] and Jordan [redacted]

warm air from the water. A hurricane carries really powerful winds that can be extremely dangerous. According to the New York Times, "these days we are all pained by the disaster caused by the hurricane in the United States of America."

hurricane would leave widespread damage. For example, trees would be striped of thier leaves and small buildings would be blown down. The fourth category has wind speeds of approximately 120-175 mph. The hurricane would cause severe damage to windows, flooding up to six miles inland, and heavy damage to lower stories of buildings near the coast.

Finally, category five hurricanes go more than 175 mph so it would destroy small buildings, cause major damage to all buildings less than 15 feet above sea level, and evacuation may be required of people living within 10 miles of the shoreline.



by Tionna [redacted]

WHAT WAS THE STRONGEST HURRICANE?

The strongest hurricane that has ever hit in the U.S. was "The Great Labor Day," which was on September 2, 1935 with category 5 wind speeds of more than 175 mph. The hurricane was so strong and devastating it killed more than 13,000 people and had also hit an estimate of 15 states. With all the damages it caused the cost was approximately 1.3 billion dollars. For some people it was the worst experience of their lives.

WHAT TO DO IN CASE A HURRICANE STRIKES!

Before a hurricane strikes the best thing to do is to at least have an emergency plan and also gather supplies. When you are packing, make sure to always pack necessities. When you plan to evacuate from your house make sure to always leave before the hurricane strikes. Whenever they announce a hurricane warning, board up your windows and doors because glass could break and hurt someone. If you plan to leave town, make sure to fill up your gas tank. By preparing for hurricanes before they arrive, your family can be protected from the damage they cause.

Some people think that a hurricane could cause the end of the world. Although hurricanes can be destructive, we believe that hurricanes could not end the world because they only

Fun Facts

The first time anyone flew into a hurricane happened in 1943 in the middle of World War II.

Every second, a large hurricane releases the energy of 10 atomic bombs.

In the Pacific Ocean, Hurricanes are generally known as typhoons. In the Indian Ocean they are called tropical cyclones.

Water must be a certain depth for hurricanes to form, at least 200 feet (60 m). Additionally, the water must be warm, over 80° F (27 ° C). Really strong hurricanes form over warmer water.

Swirling Storms

by Marcus [redacted] & Maricela [redacted]

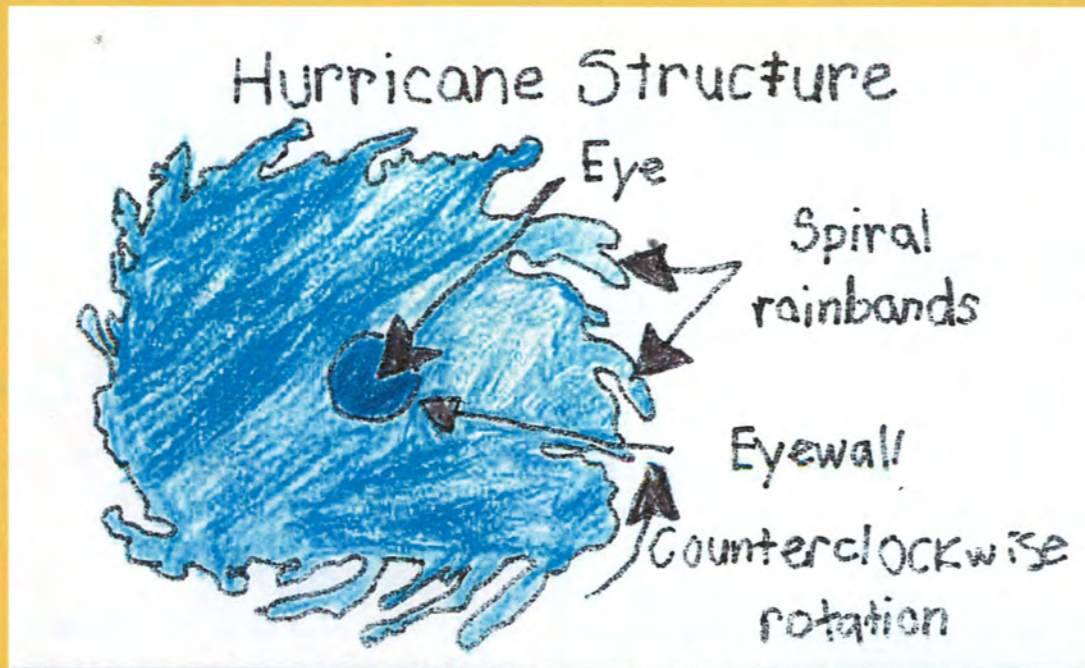
Imagine being in a boat with winds speeding past your face and waving waters that are about to tip your boat over. Hurricanes are large swirling storms that destroy everything in their way. Hurricanes form when really warm ocean water and cold air blow in the same direction at the same speed. The hot air rises and makes the clouds of the storm. As the hot air rises the cool air swirls around the hot air creating the cyclone. The middle of the hurricane is called the "eye". The eye is very calm and made of the warm air.

Hurricanes have scared a lot of U.S. citizens because just recently Hurricane Sandy hit

New York. Sandy destroyed 200 million dollars worth of houses, hotels and parks. Hurricanes have stronger winds than regular storms and therefore cause more damage. Hurricanes are measured by wind speed. There are five different categories of hurricanes. A minimal hurricane has a wind speed of up to 95 mph and would be a category one storm. A category five storm (catastrophic) has a wind speed over 155

mph. Hurricane Sandy was a category four storm but when it got to land it turned into a minimal storm.

Another terrible hurricane was Hurricane Katrina in 2005. It hit New Orleans and was just as bad as



This is the eye. It's the calmest part of the storm.

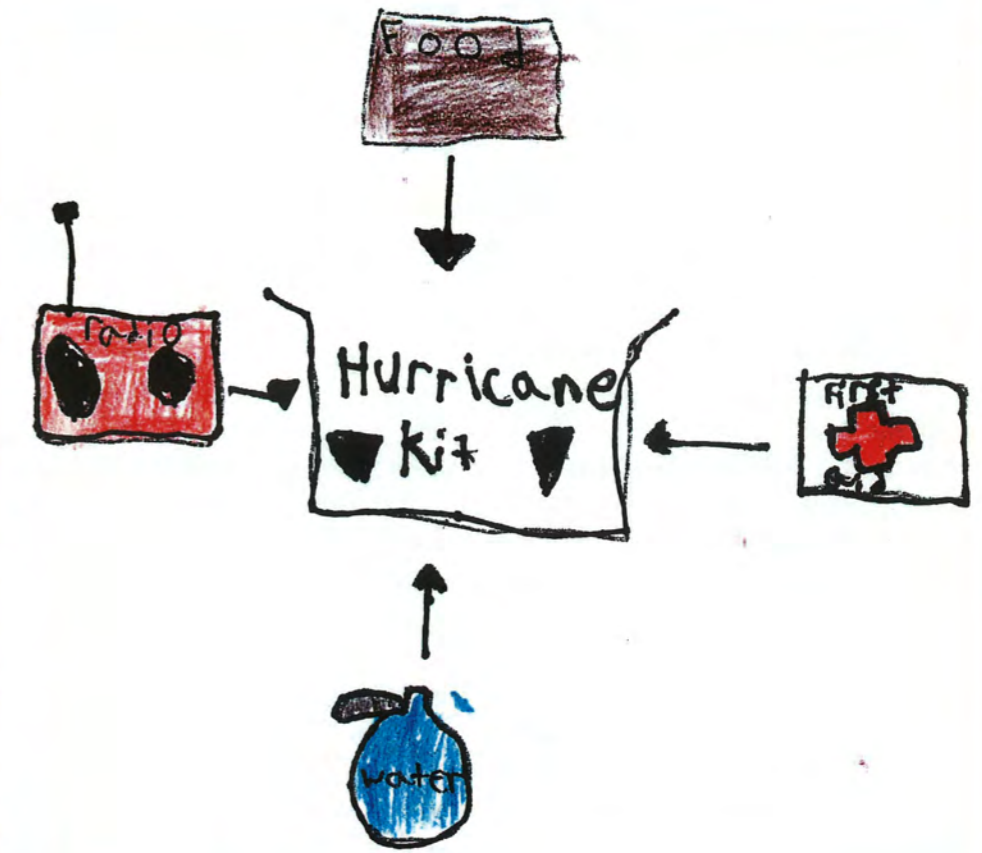
by Maricela [redacted]

Sandy. what made it so bad was that people were not prepared. You can always be prepared for a hurricane by making a hurricane kit with food, water, a first aid kit, batteries, radio and flashlight. You should stay inside and bring your pets with you. In some cases you need to evacuate your home. You will want to move out of the range of the hurricane.

There was a hurricane in San Diego but it was

small and it happened a really long time ago. Hurricanes rarely occur in San Diego because the ocean water is not the right temperature. Hurricanes mostly occur in places like Miami and Hawaii because they have warm ocean water.

Hurricanes are not safe at all. Hurricanes like Katrina and Sandy were two of the deadliest hurricanes ever. We talked with a spokesperson at the San Diego Weather Foundation and he said "Hurricanes can't end the world." Hurricanes only happen during certain months and in tropical places. In conclusion, hurricanes can't end the world but can damage the world.



This is what people need to be prepared for a hurricane.

by Marcus [redacted]

Words To Know

Eye-The middle of the hurricane.

Tropical Depression- An area of heavy rains and winds where a hurricane first develops.

Current Events

* Did you know that the U.S. government gave \$51 billion for relief and recovery from Hurricane Sandy?

DEATH TRAP IN A WAVE

by Sonya [redacted], Alexa [redacted] & Alexa [redacted]

Run! It's a tsunami! Imagine looking into the horizon and a 100 ft. wave is coming for you. The wave looks like it is reaching over the clouds and you feel like you are two inches tall. When the tsunami is over, you see all the destruction that it has made. Houses and businesses are crumbled to the ground, with thousands dead. Tsunamis are very dangerous. They mostly affect the coasts of The Pacific Ocean and Japan. Tsunamis destroy houses and buildings, and can kill many and leave people

destroyed. One boat actually sunk," said Sgt. John Sandmeyer, a lifeguard in Mission Bay.

A tsunami doesn't just happen on its own first, an earthquake, landslide or volcano erupts. When a tsunami is caused by an earthquake it is because the tectonic plates cause strain. When they move, a rock can get stuck under one of the plates. One of the tectonic plates could go under the other which causes strain. When the plates finally let go, the force of the plates cause the water to be lifted up which causes a tsunami. Another way that an earthquake can cause a tsunami is when the **oceanic plate** goes under the continental plate. When the oceanic plate goes under the **continental plate** it causes the plates to rise and then it makes the seabed uneven. When the ocean floor rises, it causes the water to go up with great force, which causes the huge waves.

When tsunamis are caused by a landslide, a piece of land falls into the ocean. When it falls into the ocean, the impact of the piece of land pushes the water away. Since the water has nowhere to go it creates huge ocean waves. The landslide causes a big enough gap in the sea bed which causes a tsunami.

There are two types of volcanoes that could cause a tsunami both on land and in the ocean. Volcanoes break down and collapse making the debris fall into the water. When the volcano's debris goes into the water it displaces it, causing waves. When the water is displaced it goes to the sides creating waves. An underwater volcano could also cause a tsunami. The underwater volcanoes collapse and the sea bed sinks. When the sea bed finally goes back to normal the water gets pushed up creating the waves.

Tsunamis are a huge threat to many lives but you can always prepare for them. When there is a tsunami warning, lifeguards help prepare by making an **inundation line** to get you away from the coast. Technology has advanced to where

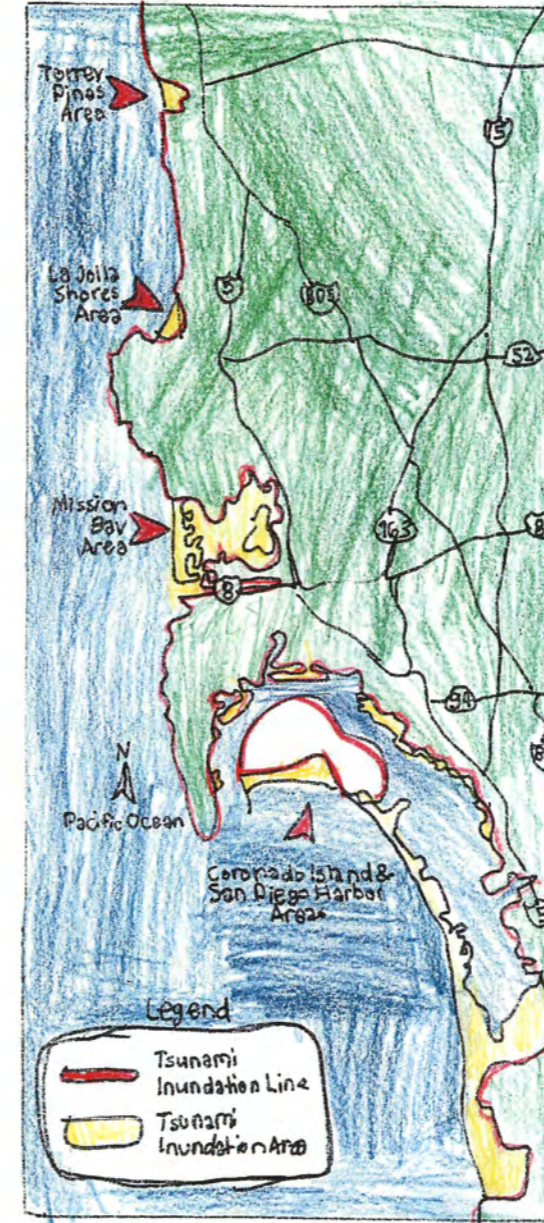


A meteorite hitting the bottom of the ocean, causing the water to be pushed sideways and creating tsunami waves.
by Alexa [redacted]

displaced. Tsunamis are a series of waves that are very big. The huge waves hit land and can destroy a city.

"Many people believe that the 2011 tsunami in Japan didn't affect San Diego, but it did. Some of the boats in Mission Bay were

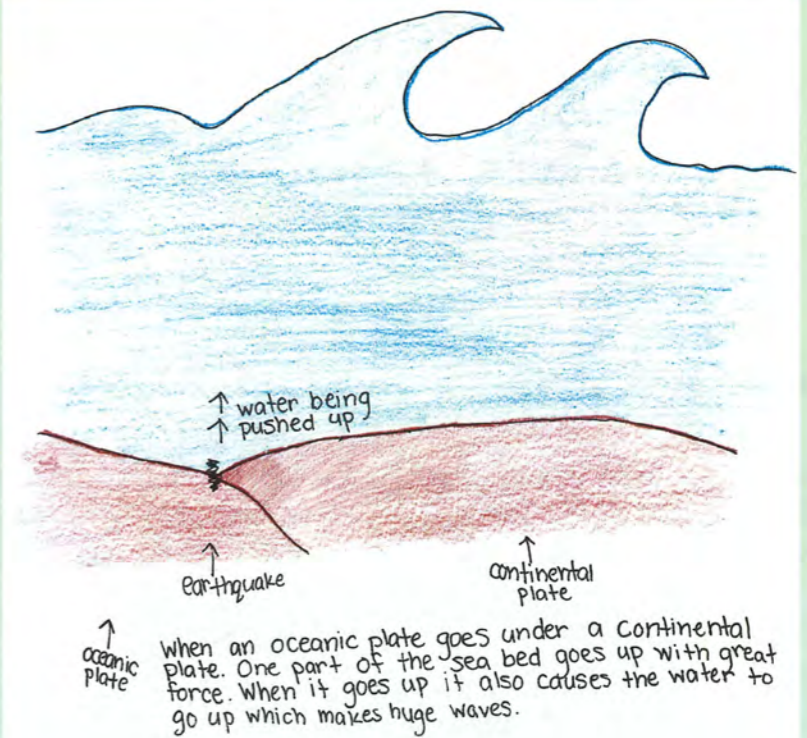
City of San Diego and surrounding Tsunami Inundation Areas



Where can a tsunami hit in San Diego? This map shows us far it could go inland.
by Sonya [redacted]

people will get tsunami alerts on their cellphones. The 911 operators send a text to anyone that is near the coast. After you get that text message then you have to evacuate as soon as possible.

"A tsunami could not end the world," says scientist Dailin Wang, a tsunami scientist at NOAA (National Oceanic and Atmospheric Administration). A really big tsunami could not even kill all the people in a whole state. It would probably only affect parts of the coast because tsunamis could not come much higher than sea



A tsunami caused by an underwater earthquake.
by Alexa [redacted]

level. The tsunamis power decreases as it comes inland. One of the largest tsunamis that has ever been recorded was the 2004 tsunami in the Indian Ocean. It affected big parts of India and Thailand. In the end, the tsunami killed a total of 230,000 people. Therefore a tsunami could not end the world, but could end hundreds of thousands of lives.

Words To Know

Continental Plate - Crust of the Earth.

Oceanic Plate - A tectonic plate made of basalt.

Inundation Line - Inland limit of wetting, measured horizontally from the mean sea line.

The Volcano Expedition

by Elyanna [redacted], Kennadi [redacted], Victor [redacted]

When I was six, my grandparents took me to see a volcano erupt. I was standing on The Big Island of Hawaii a quarter of a mile away from a volcano! I was so scared! The ground was shaking

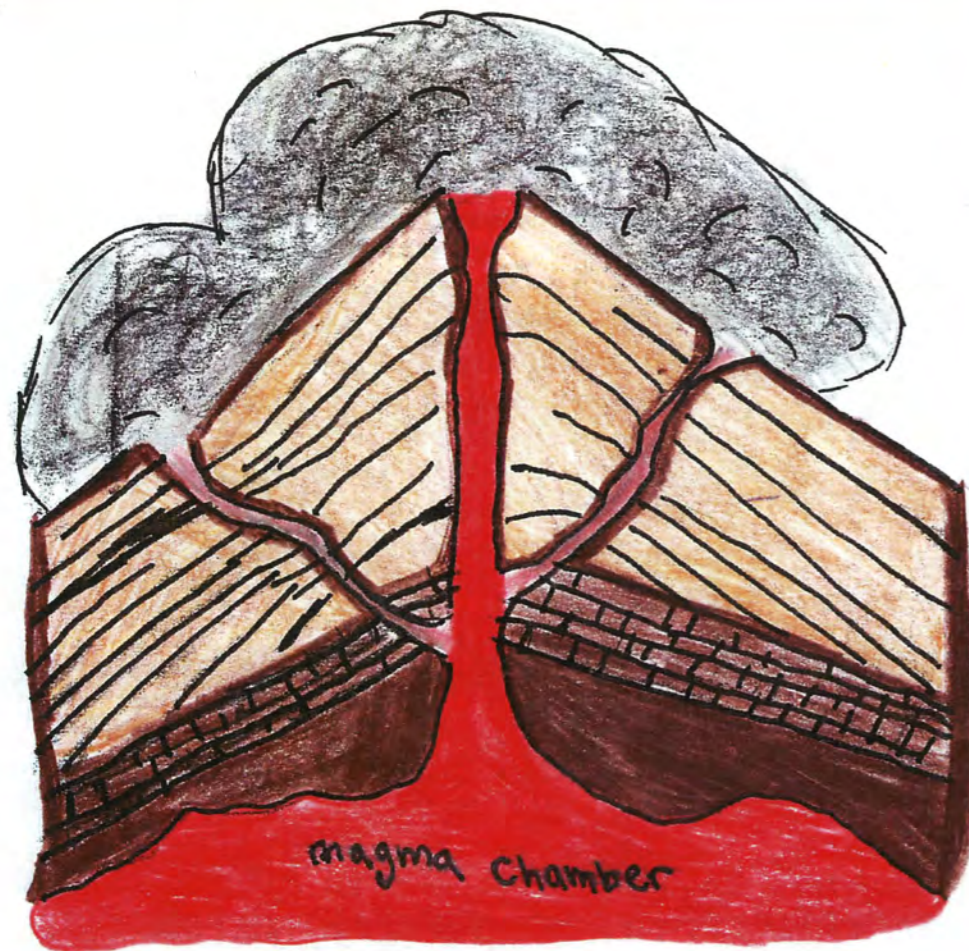
A **volcano** is a mountain that opens downward to the center of the Earth into a pool of molten rock. It would just look like an ordinary mountain unless you were to climb to the top and look down inside. If you were to look inside a volcano, it would look very unusual with a huge hole in the middle. The hole would be filled with mostly rocks.

Most volcanoes are located where tectonic plates meet, usually close to the ocean. Tectonic plates are what trigger earthquakes and volcanic eruption. Volcanoes erupt because Earth's crust is made up of huge slabs called plates. When two plates collide, one on top of the other, the one beneath is pushed down and **magma** is squeezed up between the two plates. Volcanoes are formed when the magma comes up to the earth's crust and is released. It soon forms a dome shaped mountain.

Today's active volcanoes and active volcanoes in the past are totally different. In the past, volcanoes were highly active. Today volcanoes aren't as active as they used

to be. Actually, most volcanoes are extinct. Volcanoes can erupt more than once, and the world record of eruptions is sixty-nine times.

Volcanic ash can produce many particles such as Carbon Dioxide, Sulfur Dioxide, and Hydrogen Chloride.



This is a diagram of a magma chamber, the source of a volcano's lava. -Elyanna

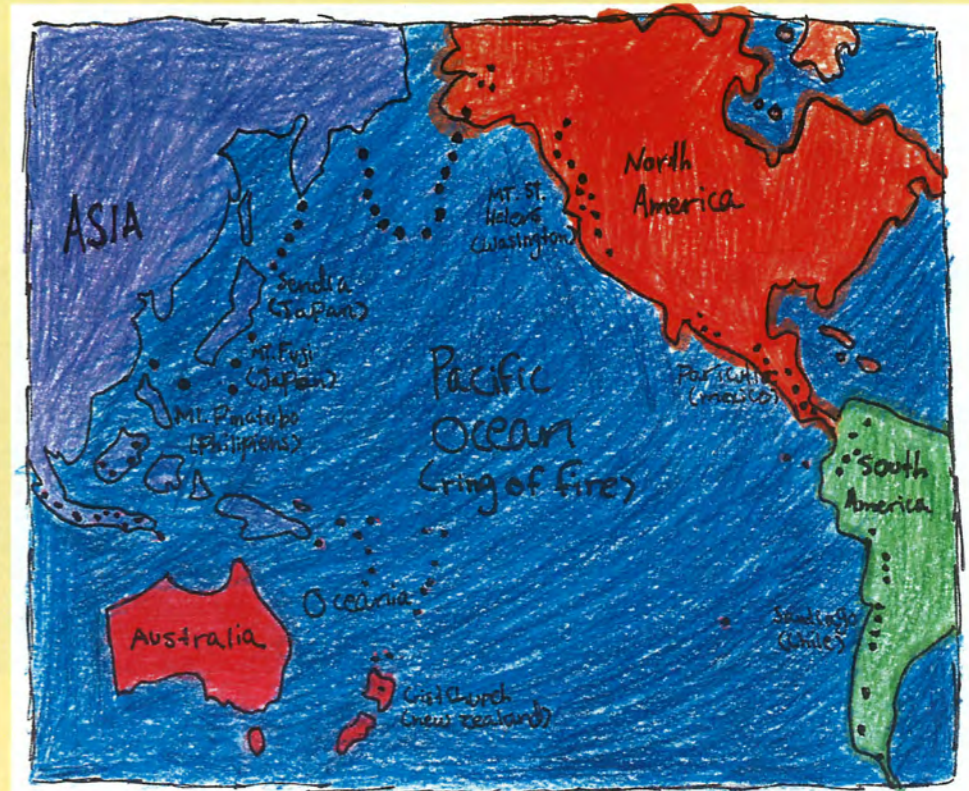
and the air was hot. It began to shoot hot lava into the air and into the ocean. I watched the hot lava flow down the side of the volcano destroying everything in its path. My encounter with volcanoes was extraordinary!

These gases can contribute to air pollution which leads to illnesses such as asthma and lung cancer. Even volcanoes underwater are dangerous. Under water volcanoes are very dangerous to sea creatures because volcanoes change the temperature of the ocean. When it erupts, fish that are too close to the volcano, are burned.

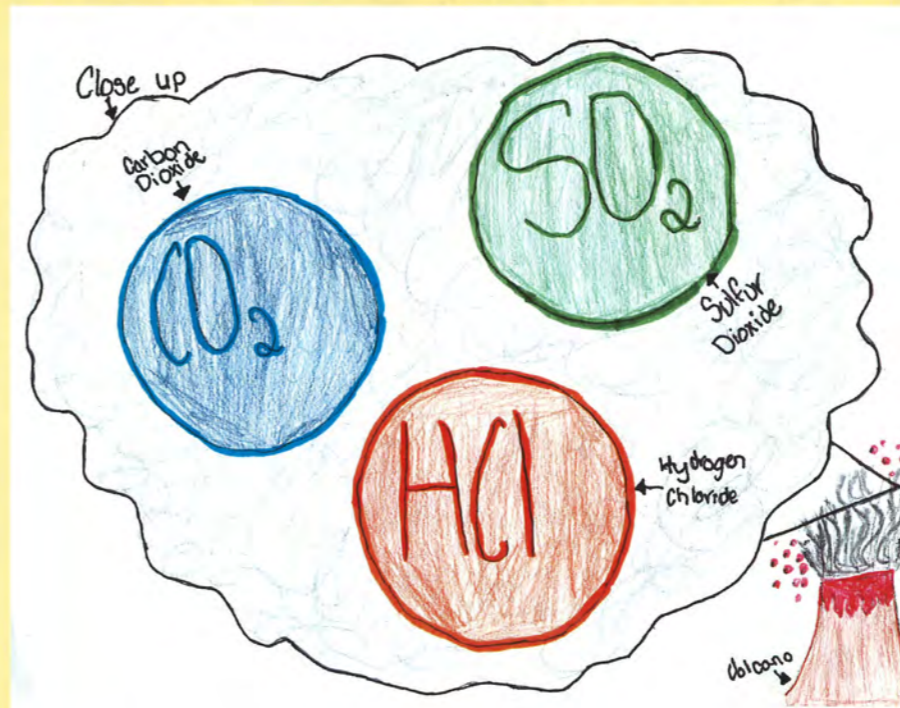
In 79 A.D. the famous eruption of Pompeii, which is located near modern day Naples, occurred and left everything destroyed. The volcanic ash covered the entire city. No one lives in the city now, but people still come to see the city. "Mt. Vesuvius is still an active volcano," says Phil Farquharson, a geologist in San Diego. "I think that in a matter of time it will erupt again."

Volcanoes can cause a lot of destruction to people, cities, and the environment. However, personally we believe that volcanoes could not cause the end of the world because there are not enough volcanoes located close enough to major cities,

most volcanoes today are no longer active, and most volcanoes are located underwater. Volcanoes are powerful and can be harmful, but they are not a large threat to human life.



The Pacific Ocean is where the Pacific ring of fire is located. This is a series of 452 volcanoes. They are 75% of the world's active and dormant volcanoes. -Kennadi



Many chemicals are released when a volcano erupts. These can contribute to air pollution, cause lung cancer, and asthma. -Victor

WORDS TO KNOW

Volcano- A mountain that opens downward to the center of the earth into a pool of molten rock.

Magma- The name of lava before it has left the center of the volcano.

FUN FACT

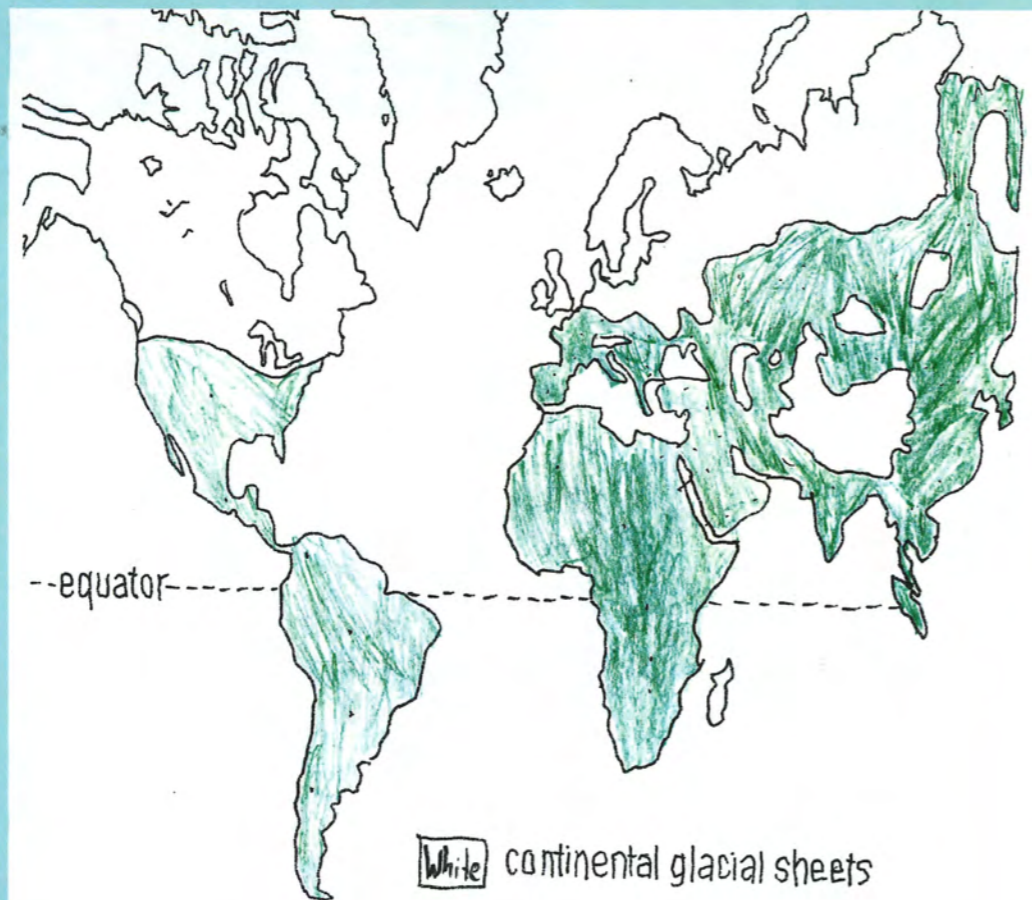
Did you know that gases such as Carbon Dioxide, Sulfur Dioxide, and Hydrogen Oxide are produced when a volcano erupts?

WINTER WORLD

By Adrian [redacted] Anthony [redacted] & Derrick [redacted]

1,760 yards!? That's over 17 football fields! That's the distance in a mile! This number also represents the thickness of some of the layers of ice during the ice ages. During an ice age the temperature is very cold over large parts of the earth. Huge areas are covered with ice. It's like Antarctica all over the world. There have been many ice ages since earth formed about 4.5 billion years ago. The first ice age started about 3 billion years ago. Scientists predict that the next ice age will be in 80,000 years.

When there is an ice age, the weather affects many things important to human life. The world's animals are greatly affected by an ice age's cold climate. The freezing of water kills animals like fish, sharks, whales, and other sea animals. Some animals can't survive and then they become extinct. Plants won't grow because it would be too cold. The nutrients and vitamins plants give us will be no more. Although an ice age can't cause the end of the world, but it can cause the world to change.



This is a map of the ice ages continental glacial sheets.

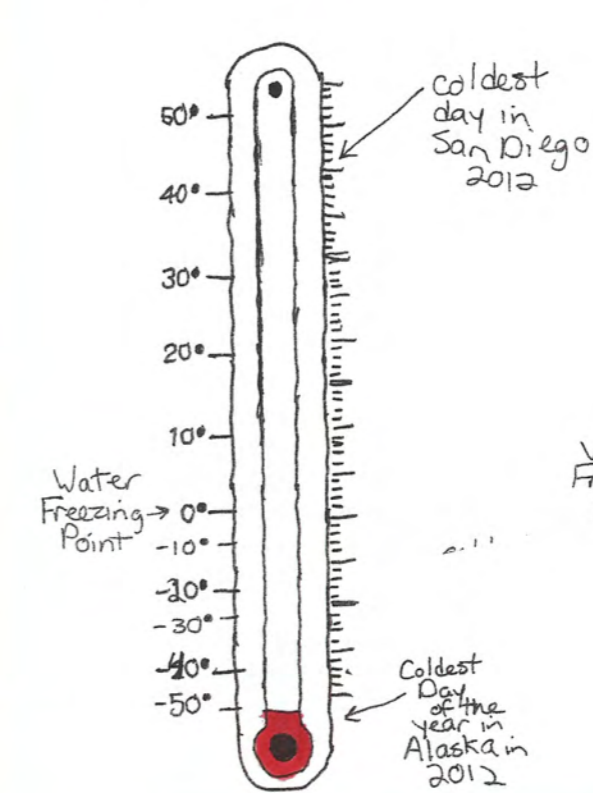
Some animals that lived during the ice age are the saber toothed cat, short faced bear, woolly mammoth, woolly rhinoceros, dire wolf and American lion. These animals did well in cold climates because of their heavy coats of fur. These animals prepared for the cold climate by hibernating and collecting food before conditions became too severe.

Ice ages begin by the earth's temperature decreasing. Due to the Earth's axis changing the climate will also change. Some places where it doesn't normally get cold will snow, or even hail. Ice ages end when the world eventually goes back to its usual climate. Harvard geophysicist, Peter Huybers, says that the cycle of ice ages and deglaciation are caused by slight tilts in Earth's axis. According to the Glossary of Geology, deglaciation is the uncovering of a region of land from beneath a glacier or ice sheet by the retreat of it due to shrinkage by either the melting of the ice sheet or glacier.

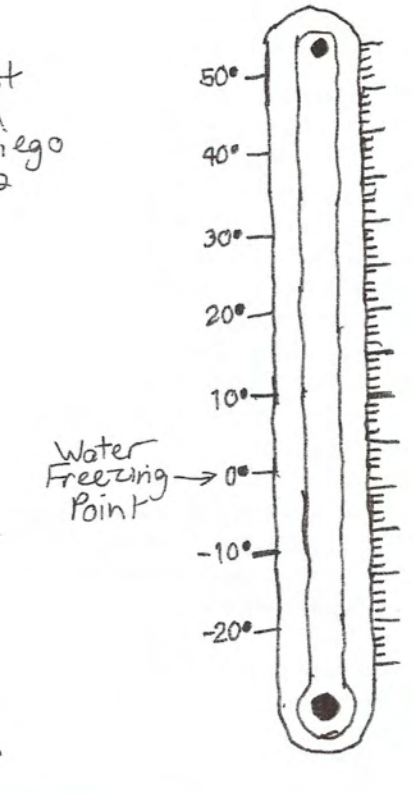
After researching ice ages, we agree with scientists in that an ice age couldn't end the world. The ice ages can't cause the end of the

world because only it would cover some parts of the Earth. The remaining places would be a little warmer. Humans would then migrate, and live in these areas .

United States of America



Ice Age



This picture compares average temperatures in modern America and during the Ice Age.

Fun Facts

At first, scientists called the woolly mammoth 'Elephas Primigenius.' That means the first elephant. Later it was reclassified in its own genus, 'Mammuthus primigenius.'

Ice ages can last for thousands or millions of years. We're still technically in an ice age that began 2.6 million years ago.

Malaria, HIV & Cancer: The Next Plague?

by Qiaunci [redacted], Grace [redacted] & Junaid [redacted]

Imagine living in a world full of pain and suffering, children crying, and people dying. Over 8,516,000 people die from AIDS/HIV, Malaria, and Skin Cancer each year. People between the ages of 15-24 are most likely to get HIV, people over the age of 40 are most likely to get skin cancer, and anyone can get malaria. Diseases are all over world. They can be spread by person to person, by eating or drinking food or water that has disease-carrying organisms inside of it, by breathing in infective chemicals that travel through the air, and by diseases spread by insects. People in Africa have to live with this and most times don't have a chance to get treated because in Africa there isn't enough medical help.

Mr. Greg, a teacher at High Tech Middle, who has gotten Malaria in Tanzania, Africa says, "I have had Malaria two times before and I got rid of it in a week by taking pills and medicine. When I had Malaria I had a really bad flu, my joints ached, and I wanted to throw up. Also I heard people talking. When you have Malaria you have on and off pains." Malaria is a parasite found

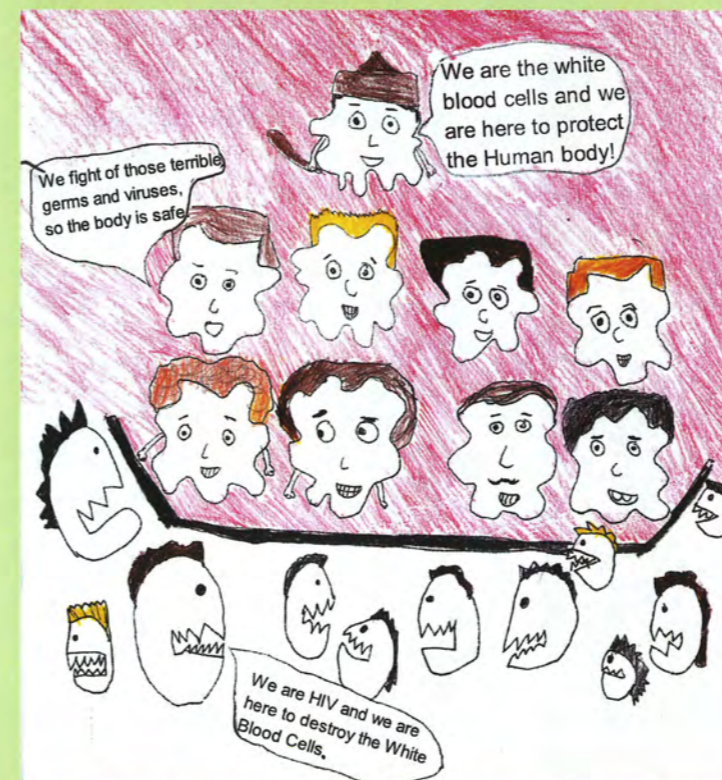
parasites in Africa because of the climate. Five thousand years ago a Chinese medical parchment was found that included information about Malaria, but ancient Egyptians had written about Malaria first even if no one discovered it until the late 19th century. There are Malaria vaccinations, but people can still die from Malaria because they might not have medicine in some places they live. When you are bitten by a mosquito with Malaria, the parasite releases into your body and enters the liver. The parasites stay in the liver and make more of themselves. Malaria cells can stay in the lungs or travel to the brain. Children can get Malaria from their parents because the Malaria parasites destroy the red blood cells in your brain and cause it to swell. The parasite reproduces in the red blood cells and kills them off since they aren't needed. One way to prevent Malaria is to wear a net when you go to sleep, to protect yourself from mosquitoes.

Skin cancer is the most common of all cancers. There are two types of skin cancer, Non-Melanoma and Melanoma Skin cancer. More than two million people are found with Non-Melanoma skin cancer each year. Non-Melanoma skin cancer is found at the base of the skin. Most Non-Melanoma skin cancers develop on sun-exposed areas of the body, such as the face, ears, neck, lips, and the back of the hands. More than 75,000 people had cases of Melanoma, the most serious type of skin cancer, in 2012. Melanoma is made when there is uncontrolled amount of growing pigment (skin color) producing tanning cells. Melanoma begins in a cell that produces the skins coloring also known as Melanin. Melanin helps protect the deeper layers of the skin from the harmful effects of the sun. Melanoma is most common to men and women between the ages of 20-29. Something Non-Melanoma and Melanoma have in common is if they are found and treated early enough they can both be cured.

Some ways you can get skin cancer are unprotected and/or excessive exposure to UV Rays (sunlight or tanning booths), having a pale complexion (difficulty tanning, easily sunburned, natural red hair or blond hair color), having other members of your family who have had skin cancer, multiple or unusual moles, or severe sunburns in the past. Any changes on your skin, scaliness, oozing, bleeding, or change in the appearance of a bump, the spread of

pigmentation beyond its border, such as a dark coloring that spreads past the edge of a mole or mark, and a change in sensation, such as itchiness, tenderness, or pain can be signs or symptoms of skin cancer. Some things you can do to prevent skin cancer are avoid the sun between ten a.m. and four p.m., look for shade, especially in the middle of the day, wear protective clothing, and use sunscreen that has a SPF of 15 or higher.

HIV is short for Human Immunodeficiency Virus. It is a virus that causes a horrible disease. When you get AIDS your body gets very weak because your white blood cells run low. White blood cells are very important because they fight off the germs and viruses that try to get inside your body. The Incredible white blood cells could not defeat the terrible HIV? How could this happen? The white blood cells were made to protect and defend the immune system. The two amazing types of white blood cells shoot protein at germs, bacteria, and viruses and even swallow them whole. How could they be no match to HIV? HIV is a very sneaky virus. They stick themselves to the side of



The white blood cells are extremely important to the human body.
by Grace [redacted]

the white blood cell and fuse into the cell. Inside a white blood cell there normal procedure is to enclose the virus in an acid bath, killing the germs, but that doesn't work with HIV. When HIV gets put in the acid bath its more like an advantage for HIV because inside the virus is RNA. RNA makes a replica of the DNA and puts it into the white blood cell making the white blood cell have HIV DNA. Then the white blood cell breaks into many new HIVs. The white blood cells try to overcome the virus, but there are too many and that's when you get AIDS. Your white blood



If you go to the beach without use of sunscreen it can lead to skin cancer.
By Qiaunci [redacted]

cells run really low and you can't protect your immune system.

Every 5 minutes a child dies from malaria, every 9.5 minutes someone is infected with HIV, and one person dies from Melanoma skin cancer each hour. Diseases put peoples' lives at risk every single day. This is a threat to people all around the world. Diseases can not end the world, but could impose severe limitations on human life. For example, it can cause a major drop in the population. That is why it is very important to get vaccines, have regular doctors appointments, and take preventative measures against disease.

Words To Know

Organisms: An individual animal, plants, or simple celled life form.

Parasites: An organism that feeds off another organism to survive.

Disease: A period of sickness affecting the body or mind.

RNA: RNA are seen in all living cells and they act as a messenger for the DNA. In some viruses they carry all the genitic infromation.



This shows how many places are suffering from Malaria.
By Junaid [redacted]

in infected mosquitoes. Another way someone can get Malaria is when there is a blood-transfusion and the blood donor has Malaria parasites. The parasites get sent into the other person's body and they now have Malaria. Malaria is found in places like Central and South America, Africa, Asia, and the Indo-Pacific region. You can find most mosquitoes with Malaria carrying

cancer are unprotected and/or excessive exposure to UV Rays (sunlight or tanning booths), having a pale complexion (difficulty tanning, easily sunburned, natural red hair or blond hair color), having other members of your family who have had skin cancer, multiple or unusual moles, or severe sunburns in the past. Any changes on your skin, scaliness, oozing, bleeding, or change in the appearance of a bump, the spread of

Horizon of Doom

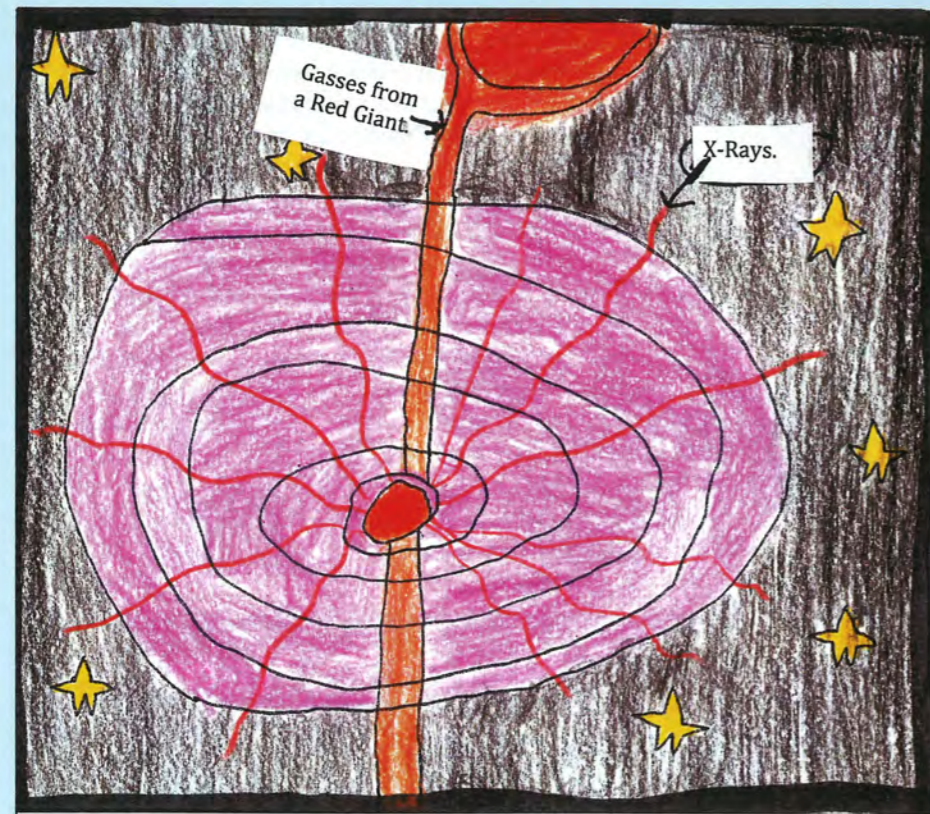
by John [redacted] Langston [redacted] & Hayden [redacted]

Imagine. You're floating in the ocean. Suddenly, you feel a tugging. You don't think its much. Then, BAM! You get sucked down to the depths of a whirlpool. Think of that pull. Then think 10,000 times that pull. That's what black holes are like. Black holes are the strongest force in the universe in which nothing can escape. How is a black hole made? Black holes form

all) galaxies have black holes with masses 100,000 times the mass of the sun," says assistant professor Jerome Orosz of Astronomy at San Diego State University. There is nothing to be done about black holes since nothing can escape them. But lucky for us, our sun is too small to become a black hole.

If you got sucked into a black hole you would be stretched and twisted until you were a sliver of matter. Scientists call this process "spaghettification" because you would look like a strand of spaghetti. Originally, Nigel Calder used the term, but later Stephen Hawking expanded on the expression. Other people believe you would be transported to another universe, but many scientists have turned that idea down because in principle, the mathematics of black holes shows they might be able to transport you to another region of space or possibly another universe. However, the mathematics also show that the connection only lasts for a fraction of a second at a time, and that the link to other universes depends on a specific set of conditions, which may not even exist. In order for something to be sucked into a black hole, it has to be inside its event horizon. A black hole's event horizon is a point beyond no return. If you go there, you won't come back.

There is no gravity in space, but black holes have such a great force of gravity. Does a black hole take all the gravity from space? Maybe that is how black holes are so strong. Since there is no gravity in space not many people understand how black holes have so much of it. Since black holes are made



When a black hole gets close to a red giant, it sucks the gasses from it and produces x-rays. by John [redacted]

when a star gets so big it causes a supernova, or explodes, and the matter collapses on itself to form a black hole. Matter is the substance or substances of which any physical object consists or is composed: the matter of which the earth is made. In other words, matter is everything.

"There is evidence that most (if not

up of suns, they get their gravity too. And when they absorb planets and stars they also get their gravity too.

Scientists can detect black holes by their x-rays. Since a black hole's gravity is so strong, it gives off electromagnetic rays, or x-rays. If a black hole absorbs a star, it pulls gas from the star orbiting around it. The gas heats up and emits x-rays as it falls into the black hole. Scientists currently detect a black hole at the center of the Milky Way that is 4,000,000 suns big and 24,000 light years away. Fortunately, this black hole is very far away, and no threat to us. Looking for a black hole with the naked eye is impossible, since the black hole sucks in everything including light, the fastest speed in the known universe. Nothing can escape a black hole, so it is invisible. However, if you could get close enough without dying, you could see the center of a black hole as it sucks in light.

"The only way a black hole can destroy the Earth is if a star and our sun merge together to become a black hole," says Orosze. This creation is probably the most powerful of all. There might not be a way to prevent black holes, but we will never stop looking. Black holes might just end



This explains spaghettification of how when an object goes into a black hole and turns into a sliver of matter. by Langston [redacted]

our world for all time. But personally, based on evidence of which the sun will explode before any black hole will reach us. We think black holes will not end our world so we are safe.

Fun Facts

If you got sucked into a black hole you would automatically die. However, if you were watching someone being pulled in, it would be in slow motion.

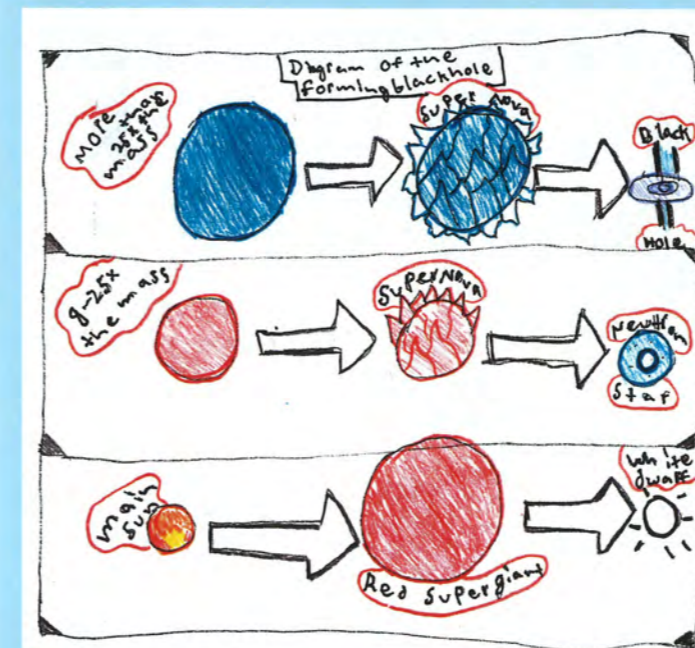
There are spinning black holes, electrical black holes, and black holes that do both. Spinning black holes spin at least 450 times per second, and electrical black holes have electricity running through them.

When black holes are sucking up matter, they make a gurgling sound.

Although white holes are mathematically possible, we have yet to find evidence to prove their existence.

A black hole is colder than empty space, absolute zero (the coldest temperature possible).

The center of a black hole, the singularity, is where the laws of physics break down. For example space-time and causality don't exist in a black hole.



Lucky for us the sun is too small to become a black hole. It will just turn into a white dwarf. It would have to be 25x the mass for it to become a black hole. by Hayden [redacted]

Flying with Meteors, Comets and Asteroids!

By Philip [redacted] Shayan [redacted] & Irwin [redacted]

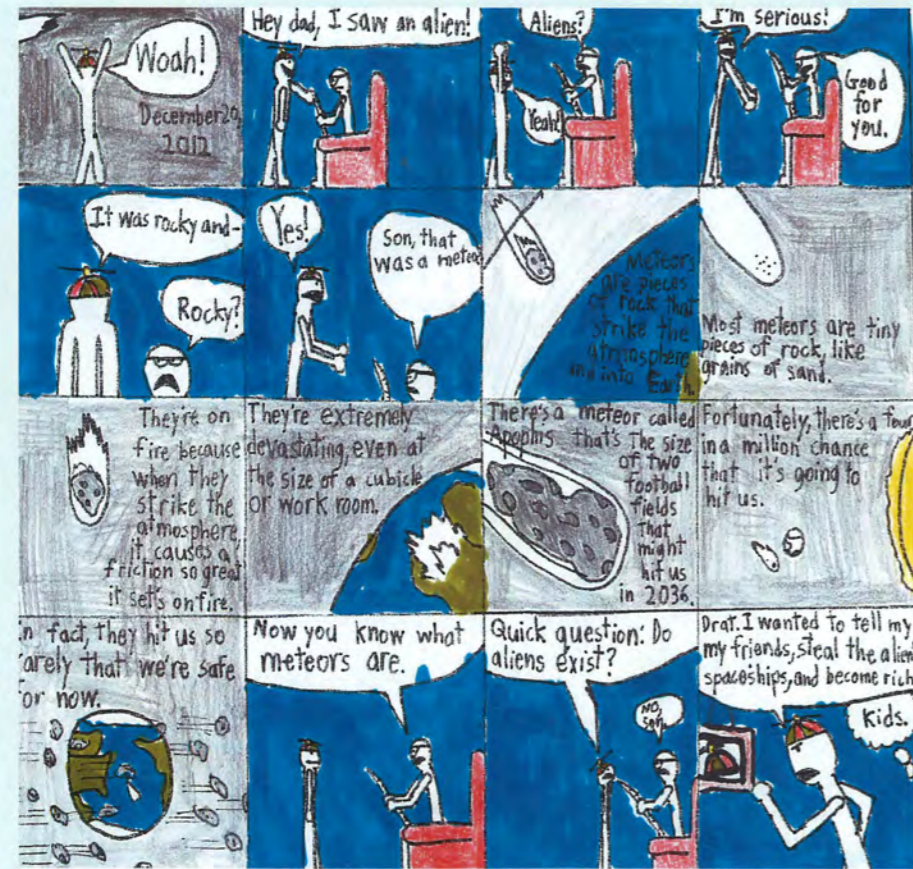
A giant rocky object in space is hurtling towards Mars and collides with another object much bigger than itself. But what are these giant objects? They're meteors! Meteor are rocks that float around in different places in outer space. Some meteors have metal substances in them. It's very rare to find a meteor made completely

flies in a path called the main asteroid belt. If an asteroid comes out of the main asteroid belt then it has become a meteor. The main asteroid belt orbits between Mars and Jupiter.

Another object in space is a comet. Comets are made of ice and their tails are made of gas and dust. Comets orbit around stars so they move in a circular shape. Sometimes they derail from their orbit and crash into planets. When a comet goes through Earth's atmosphere it usually does not hit the surface because it melts in the air. It melts because it is going so fast that the friction of the atmosphere and the comet makes it burn and melt because it is made of ice. Shooting stars are small pieces of comets that go through the atmosphere. The friction of the atmosphere and the speed of the piece of the comet, the piece lights on fire. The piece of the comet is normally the size of a grain of sand. If the shooting star is really bright the piece might be the size of a golf ball.

About 65 million years ago an enormous meteor crashed into earth. The destruction that resulted from the meteor may have led to the extinction of many species of animals including dinosaurs. It is estimated that at least a million meteors have hit earth's surface.

There is one meteor called Apophis that may hit Earth in the year 2036. It used to be that the chances that Apophis would hit was 1 in 48,000, but now it has dropped to 4 in a million. "Astronomers determined the angle is enough that Apophis is not going to hit us," says Jason Hammond, an expert on meteors, comets, and asteroids. Apophis is the size



What are meteors?
by Irwin [redacted]

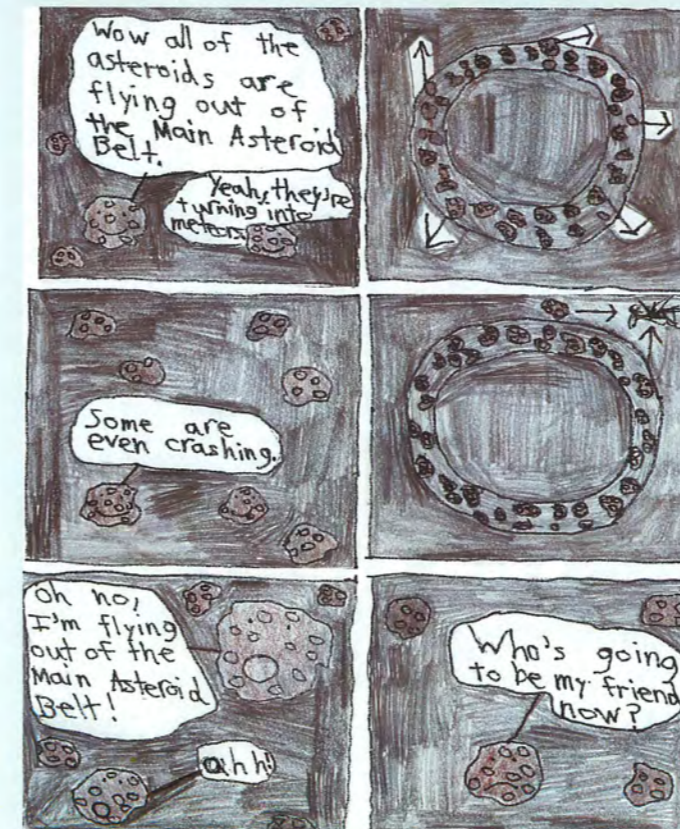
out of metal. Most meteors are made of gasses from stars, dust from space debris, and rock. When meteors hit Earth's atmosphere, they aren't meteors anymore. They're then called meteorites. They can also be called NEO's, which stands for Near Earth Objects. An asteroid is the same thing as a meteor but it

of two and a half football fields. It will hurtle past Earth at a speed of 28,000 miles per hour! Right now Apophis is approximately between 930,000 and 9,300,000 miles away from Earth. Apophis will only hit Earth if something unusual happens like another meteor hits it. It should fly 20,000 miles away from Earth.

"As far as we know right now we are safe from the meteor Apophis," says Jason Hammond. Apophis is an exciting thing to research and will most likely not hit Earth.

If a meteor is coming in contact with Earth, astronomers could send a special spacecraft at the correct angle into space that deflects the meteor.

Many meteors have collided with Earth and have left giant craters. One was recently found in the ocean by Canada. Scientists did not find it sooner because it was under water and ice. When they found it they thought it was one of the biggest meteor craters in the world. Meteors, comets, and asteroids rarely ever hit Earth and it's a very exciting thing to research.



How do asteroids convert into meteors?
by Philip [redacted]



Shooting stars can be as small as a grain of sand.
By Shayan [redacted]

FUN FACTS

Did you know that some meteors enter Earth at about 130,000 miles per hour! Also Up to 4 billion meteoroids fall to Earth every day. But most of them are too tiny to do any noticeable harm.

WORDS TO KNOW

Astronomer - An expert in astronomy; A scientific observer of the celestial bodies.

Atmosphere - the gaseous envelope surrounding the earth

Orbit - The curved path, usually elliptical, described by a planet, satellite, spaceship, etc., around a celestial body, as the sun.

Strange Space Vacuums

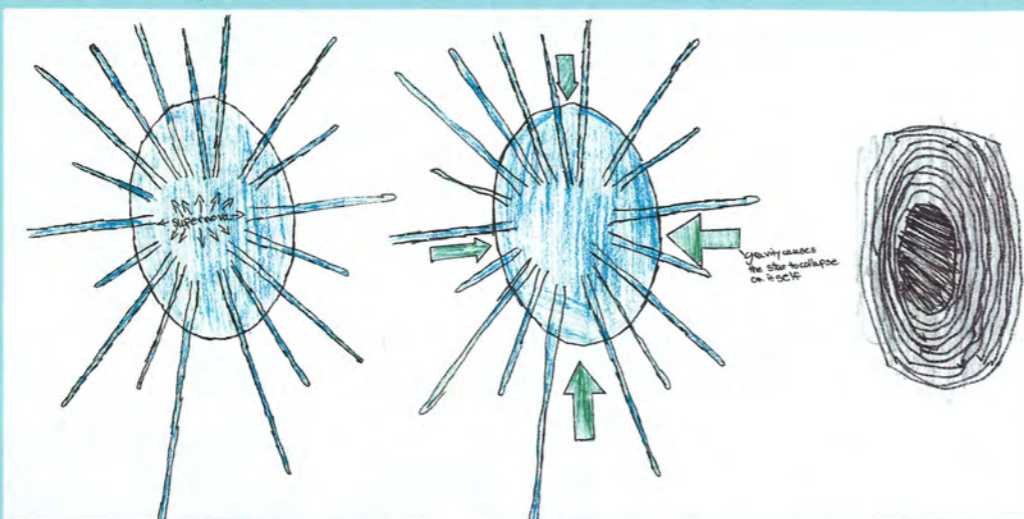
by Mark [redacted]

I gazed up into the night sky. I saw stars like little lights in the sky. Then I wondered, what is beyond the stars and galaxies? I looked it up on the Internet and the answer to my question was black holes.

Black holes? What are black holes in the sky? Black Holes are created when stars [bigger than the sun] collapse in on themselves. But I had more curiosity about black holes, searching for answers all night long. Not only did I look up the answers, I met

with an expert about black holes. His name is Jerome Orosz, an astronomy professor at SDSU. He said, "If another star combined with the sun, the sun would become a black hole." How does a black hole start? When a star explodes its gravity gets stronger and if it gets so strong that it crushes the star's core, it becomes a black hole. Right now we know 37 black holes that have been discovered. I have been asked this question by a lot of people, "Can the Earth be pulled into a black hole?" The thing is the nearest black hole is 6,100 light years away. I think that's so far that there is no chance of being sucked into a black hole.

You may be thinking what's inside of a black hole now. The thing is, nobody knows! That's right, not even NASA knows what's inside of a black hole, and this is why. When black holes are made, a swirl (think of it as a chocolate vanilla swirl to remember it better) is made around the imploded star. This funnel is actually visible gravity! This gravity field pulls in anything that comes close to it. When an object gets close to the gravity swirl, it is pulled into the imploded star. However, as it goes in the star, the gravity from the swirl squishes the object as thin as a spaghetti-string! Scientists call this process spaghettification. Nothing can escape a black hole. Not even light. Time doesn't even exist! You may be wondering who discovered black holes and how they did it. In 1687 Isaac Newton



The process of a star becoming a black hole
First it goes supernova, then it collapses on itself. Finally, it becomes a Black hole.

By Mark

discovered the laws of gravity. In 1967 a person named John Wheeler invented the name black hole. In 1971 scientist spotted a black hole (Cygnus X-1) for the first time. Finally in 2018 NASA plans to launch the LISA mission to study gravitational waves of black holes.

Then it hit me, the world will end on Dec. 21 2012. I looked up, "Can the Earth become a black hole?" What a relief, the answer is no! Suddenly it hit me again - the sun is a star! I had to look up if the sun could become a black hole! The answer is no. I was able to sleep with comfort. It was a good thing too because I'm doing a project about black holes. This is what learning can do. I study about black holes and the next thing you know I'm able to explain about black holes. Jerome Orosz said "That the earth is not in danger of getting sucked into a black hole." There is more than meets the eye to black holes.

Fun Facts

Some types of Black holes measure several million miles across.

Did you know that there is a massive black hole at the center of our galaxy?

Black Holes: Into The Void

by Quincie [redacted]

Looking into my telescope, I was amazed by the beauty that is the sky. Constellations, stars, The moon. It was beautiful.

But something was bugging me. I had learned about black holes last week and I was aware of their amazing force. Then, it hit me! If black holes can suck in anything into themselves, maybe they could suck up Earth! Everything I knew would be gone. I arranged an interview with SDSU teacher, Jerome Orosz about Black Holes, hoping he would give me an answer that would calm me. While he was talking, I was FURIOUSLY taking notes! What I learned made me very relaxed.

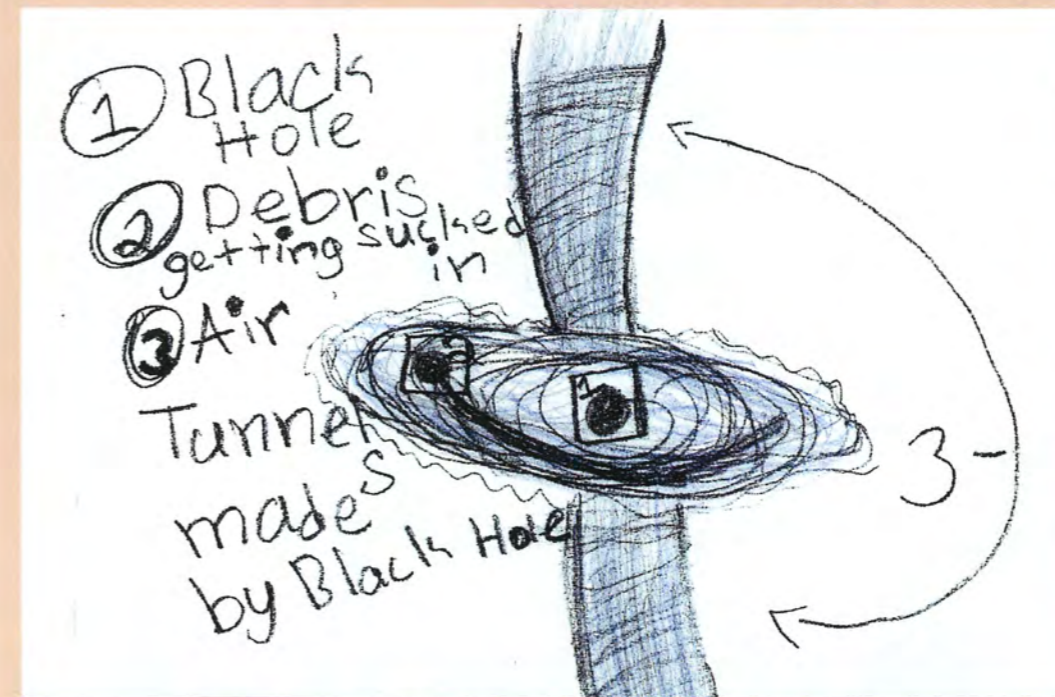
"There is no black hole close or big enough to be a threat to earth" This was the answer I received from Jerome. I was my recliner. As I was sitting, I started to get lost in thought.

massive that light can't shine out. In 1905, Albert Einstein modifies his space-time theories, finishing them in 1915, where he realizes gravity is not just a force, it just looks that way, for matter bends space. 1 year later, Karl Schwarzschild is the first one to reflect on Einstein's ideas. In 1919, Arthur Eddington observed that gravity can change the path of light. In 1933, radio waves are found from space. In 1939, Einstein wrote about how he thinks Schwarzschild's theories are incorrect, while other scientists found out that collapsing stars may lead to black holes. In 1944, radio galaxies are found.

Black holes are formed when a star implodes in on itself. This star has to be bigger than the sun to implode. Once it dies and collapses, the gravity in space makes the star's corpse as small as a marble. This gravity is so intense, it actually rips a hole in space-time. There are two different kinds of black holes, the Schwarzschild and the Kerr black holes. All black holes have a singularity, the center

of the black hole, the event horizon, the opening of the hole (A.K.A. The Point Of No Return), the ergosphere, which is the egg shaped region around the event horizon, and a static limit, which is the boundary between the ergosphere and normal space.

However, an object can escape a black hole's pull. How, you might ask? By using the force of the ergosphere to get ejected. But, if an object get into the event horizon, it can't escape. As it is being sucked in, it is stretched as thin and long as a spaghetti string. Scientists call this process Spaghettification (No, not like linguini!). What's inside of a black hole is a mystery. Not NASA, nor any other space administration knows what's inside of it! Some say it's a wormhole, others say it's something much worse. Black Holes do not give off light (hence why it's called a black



This diagram shows the design of a black hole.

The answer Jerome gave me made me incredibly happy, and as soon as I got home, I calmed down by sitting in my recliner. Calming down slowly, a thought came to my mind. What else don't I know about black holes? I looked back on my notes from my interview with Jerome, trying to sum it all up in my head.

The history of black holes was very complicated. It all started with Newton's law of gravity back in 1687. Then it went to British scientist John Michell in 1783 to Pierre-Simon Laplace in 1798 bringing up an idea called "Dark Stars", stars so

hole.) Black holes are actually identified by x-rays, mass, and their electric charges, not visible.

Fun Facts

1: Black holes absorb mass from the matter that they consume. This causes them to grow bigger. However, eventually due to Hawking Radiation, they will shrink.

2: Black holes break stuff down into subatomic particles, which made the elements and humans.





The End of the World QUIZ

1. Animal extinction: What affects animals the most?
2. Black Holes: Can the sun become a Black Hole?
3. Apocalypse: What does Y2K mean?
4. War: What are the 5 countries that have signed the NPT?
5. Tsunamis: Where was the biggest Tsunamis?
6. Human diseases : How does HIV attack the white blood cell?
7. Overpopulation: How many people are in the U.S.A
8. Hurricanes: What is the strongest hurricane?.
9. Global warming: How can we prevent global warming?
10. Polar ice caps: What gas causes polar ice caps to melt?
11. Earthquakes: What is the biggest earthquake?
12. Volcanoes:What gases come out of a volcano?
13. Deforestation: What is the main cause of deforestation?
14. Ice ages: What causes ice ages?
15. Mayans: What is the sun's zenith?
16. Meteors: What is Apophis?

1. Hunting 2. No it's too small 3. Y = year 2K=2,000 4. Russia, China, France, U.S.A, England 5. 2004, Indian Ocean 6. It fuses inside it. 7. 306, 861, 874 8. The Great Labor Day Storm (1935) 9. By biking and walking more - less use of cars 10. CO2 11. Chile, 9.5. 12. CO2, SO2, HIC 13. Poverty 14. Some influences may be: solar output, the Earth's distance from the sun, circulation of the ocean, and the state of the atmosphere. 15. When the sun is at its highest point 16. A meteor that will pass Earth in 2029 with a low probability of collision.

STUDENT DEBATE

Do you think the world is going to end? How?

| Yes | No |
|--|--|
| 27 people | 24 people |
| More people think that the world will eventually end in the future. | Some people believe the world will never end. |
|  |  |
| <p>"Eventually the sun will burn out and explode, taking Earth with it. This won't happen for millions of years, though." - Aaliyah [redacted]</p> <p>Aaliyah, a 6th grader at High Tech Middle is partly right. The Earth won't burn out for a long time. However, the sun has enough hydrogen to keep burning for another <u>5 billion years</u>. That's a long time. Did you know that the sun has been around for about 4.6 billion years.</p>  | <p>"I don't think the world will end. Many people think that just because our species dies out the world might end. Really, the world will live on, even if humans aren't a part of it." - Shayan [redacted]</p> <p>That is what Shayan of High Tech Middle says. His explanation is clear. Even if people do die, who says the world won't live on? Even if all life leaves the Earth it will still be the Earth. It won't be the same, but it's still Earth.</p>  |

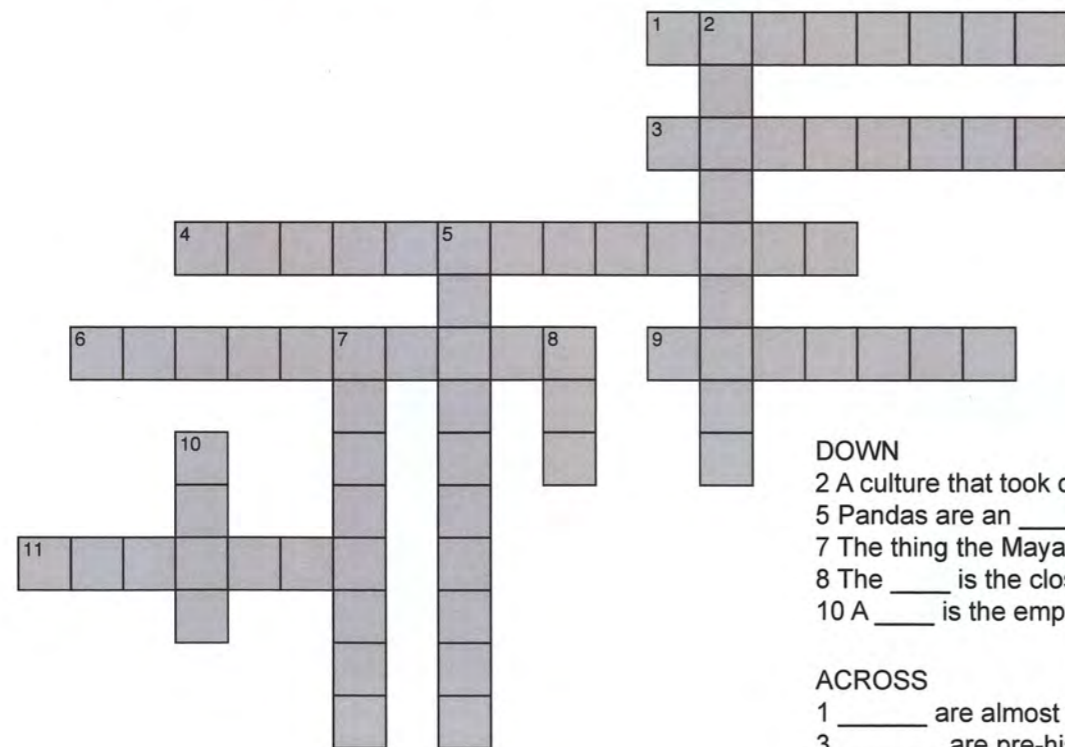
BY IRWIN [redacted], RUSSELL [redacted] & ADRIAN [redacted]

The Final WORD SEARCH

- ANIMAL
- APOCALYPSE
- DISEASES
- EARTHQUAKES
- EXTINCTION
- HURRICANES
- OVERPOPULATION
- TSUNAMIS
- VOLCANOES
- WAR

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

SUPER CATAclysmic CROSSWORD



- DOWN**
- 2 A culture that took over the Mayan territory.
 - 5 Pandas are an _____ species.
 - 7 The thing the Mayans used to keep track of the date.
 - 8 The _____ is the closest star to the Earth.
 - 10 A _____ is the empty part of a black hole.

- ACROSS**
- 1 _____ are almost the same as meteors.
 - 3 _____ are pre-historic elephants.
 - 4 The main cause of _____ is poverty.
 - 6 _____ are deadly chemicals to bugs and rodents.
 - 9 Black holes have a strong force of _____.
 - 11 The _____ is the outer layer of a black hole, which is the point of no return.

'THE END OF THE WORLD UNCOVERED

Exhibition PHOTO GALLERY



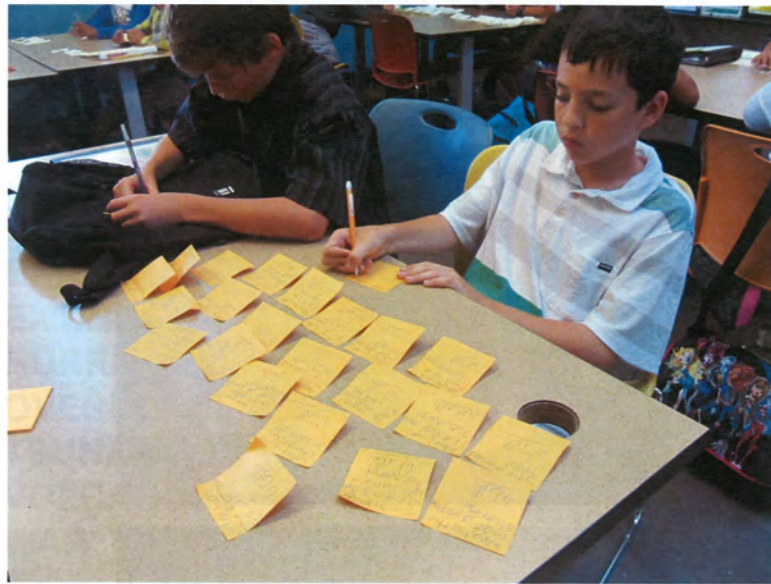
"When my parents came to our exhibition they thought that I wouldn't do a great job on such a hard topic. As they saw my classmates work they were so surprised that we all could do such a great job on the flash animation, the article and presenting our work. The exhibition was great."
 - **Simran**

"My experience was very exciting, though I was a little nervous. I got to show my knowledge to hundred! But that one special moment was when I got to show stuff to my mom. She was shocked that I knew so much about black holes."
 - **Quincie**

"The part I enjoyed the most was when I was doing sales. It was really fun to sell the magazines. People were amazed about all of the work we did for our project."
 - **Irwin**

"My experience (at exhibition) was great! I loved how the parents came to us with the questions, instead of us coming up to them with questions. I'm usually the shy kid, but yesterday I wasn't. And I liked the feeling of just sharing what I knew about volcanoes with the adults."
 - **Kennadi**

PROJECT PROCESS



Students write questions about the world on the first day of the project.



A student facilitator leads a discussion to discover a theme for our project.



A group of students compile final questions on a poster titled 'Mysteries.'

(Left) A student senator works with a committee to categorize questions and refine categories.

Photo Gallery



A committee of students (with Ms. Wong) draw up a layout for our exhibition night.



Two students write interview questions for our class documentary.



Students interview one another about the project. The interviews were used in our project's documentary, which debuted on exhibition night.



Students edit their Flash animations in the multimedia lab.

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2012 - 2013

Shaddox/Wong 6th Grade Team
Researchers • Writers • Illustrators • Designers • Editors



HIGH TECH MIDDLE

2359 Truxtun Rd
San Diego, CA 92106

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Democratic Project-Based Learning

It took a lot of work to create the project (not just the article and video). We started with our questions. Many of them were about life and death, so we used them to create a project about the end of the world. We wanted to find out if these different things could actually cause the end. I remember the satisfaction that I felt when I was presenting it at exhibition. They were amazed that a group of 6th graders could do this type of work. When we actually have a say in the project, it makes it more fun for all of us. We had design input which made it more interesting. I would definitely want to try this again.

- Langston [redacted] (6th grade student)

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The End of the World Uncovered
R. Berger Archive
High Tech Middle