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Edgardo’s Birthday Party

S.H.O.R.T. News

Writers Wanted!

Summarizing Is Important

This year at the H.O.R.T. School News, we’ve been stressing the importance of summarizing in helping you understand what you’re reading. In this issue, we’ll continue to help you practice summarizing. 

A summary is a short, clear, and concise account of the main points of a text. It is a way of capturing the essence of a longer piece of writing. Summarizing helps you quickly grasp the key ideas and details of a text, making it easier to digest large amounts of information. 

Summarizing is an important skill that can be applied to various contexts, such as reading books, articles, or research papers. By learning how to summarize effectively, you can enhance your reading comprehension and retention.

New "Review" Section Seeks Summarizers

We’re looking for a few good summarizers! Our next issue will feature a new "Review" section, where we’ll highlight books and movies. To help us create the best summaries, we’re looking for individuals who are skilled in summarizing. Whether you’re a book lover or a movie buff, we welcome your contributions.

We’re seeking summarizers who can write clear, concise summaries of new releases in the book and movie world. If you’re interested in summarizing and would like to contribute to our “Review” section, please contact us at shorthortnews@gmail.com.

Submit your summaries by the end of the month to be featured in our next issue. We look forward to hearing from you!

(continued on page 2)
Edgardo has been a good friend of mine since the second grade.

He mailed me an invitation to his tenth birthday party. His party will be at his tía’s house, because she has a swimming pool.

My mother drove me to the party. I was careful to put the invitation in my pocket because it had Edgardo’s aunt’s address, 1994 Soccer Street. I thought the address was funny because I was born in 1994, and I’m a terrible soccer player!

The party was a blast! Everyone went swimming! There was a piñata, a birthday cake, and a bag of favors for each guest. Some of the favors were candies from Mexico shaped like tropical birds and fruit.

My favorite part of the party was the music. There was a DJ who played all the songs I requested. Lots of the kids were dancing. Edgardo danced with some girls and he danced with his aunt. He loves to dance. I noticed that he held his side while he danced. He said he had a cramp—probably from swimming.
6. Many of Edgardo’s relatives were at the party. His grandparents bought him a soccer uniform. His Aunt Jessie and Uncle Pedro got him a savings bond. Edgardo wasn’t sure what a savings bond was, but he thought it looked important. I got him a chemistry set. Edgardo thought it looked like it came from a horror movie. He pretended to eat some of the chemicals. (At least, I thought he was pretending!)

7. The party ended with a relay race. Edgardo couldn’t run because his side hurt and he felt kind of sick. I thought he ate too much candy and cake, but he said he hadn’t eaten any. My team won the relay race!

8. When our parents came to pick us up, Edgardo waved good-bye to us. He felt worse and worse and had to be taken to the hospital. I think Edgardo’s party was more fun for me than for him.
The Gift
by Elizabeth McGraw-Austin

S.H.O.R.T. News
Volume 3, Number 7
We Summarize for You!
www.sorthnews.org

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We’re looking for a few good summaries. Coming soon, the S.H.O.R.T. News will feature a “Review” section to give you the essential information on a variety of books and movies. To bring you the best summaries we can, the S.H.O.R.T. News is looking for individuals who really know how to break down a book or movie to its most important elements and share that information in paragraph form. If you or someone you know is a summarizing savant, or you just want to write paragraphs, please come see us or call the S.H.O.R.T. News office. Applicants must be able to read a book or view a movie and write a paragraph answering questions about characters, setting, story problem, events, and ending.

Using the strategies that we provide, our reviewers will be able to summarize just like the experts do. In fact, many of our previous summarizers have gone on to fame and fortune in the fast-paced world of professional summarizing. Many of today’s most famous summarizers, such as the world-renowned Marshall, got their start working at S.H.O.R.T. News. Their experience was caught on in an astonishingly short time and quickly being the top summarizers. He became one of your top summarizers while summing up countless books, movies, novels, and his favorite poems. Marshall makes himself available to help young summarizers when they have difficulty finding (continued on page 2)

Summarizing Is Important
This year at the S.H.O.R.T. School News, we’ve been stressing the importance of summarizing in helping to understand what you’re reading. In this issue we will continue to help you, our valued readers, summarize whatever it is you may be reading.

A summary is simply a paragraph, detailing the important parts of a piece of writing. Once you know the strategy for good summarization, you can summarize anything that you may read—magazines, novels, news stories, poems, and anything else you may find yourself reading.

Summarizing continues to be the best way to communicate ideas from a piece of writing quickly and accurately. A summary highlights the basic facts of a story or news article, making it clear that you know the importance of summarizing. We know that you will have fun becoming a good summarizer.

(continued on page 2)
Miguel Velasquez pulled his worn-out hat over his shaggy hair as he walked up the street. He hummed a tune his father, a trumpet player, had taught him. But Miguel’s father had died three years before, when Miguel was nine. After that everything had seemed to go wrong. Miguel’s mother, Katrina, was pregnant and the family did not have enough money to stay in the house where they lived. They had to move to a small, run-down house that they shared with another family. The house was so small, and the family so poor, that Miguel, his mother, his 8-year old brother Jorge and his 2-year old sister Isabella all had to sleep in the same room, with just blankets on the floor.

Miguel’s mother became very sick, and she was forced to stay in bed for many weeks. With each passing week, she grew paler and softer of voice. Miguel knew he had to get some medicine to help his mother. An old woman from the neighborhood had said that if Miguel’s mother got a tea made from a special combination of roots and herbs that she would get better, so Miguel took the last of their money to the old woman to buy the medicine.
But as Miguel walked up to his house, he heard crying inside. It wasn’t just the crying of his little sister, who sometimes cried for no reason. Miguel could also hear the sobs of Jorge, his brother. As Miguel passed through the front door and his eyes adjusted to the darkness in his house, he saw his brother and sister kneeling by his mother.

“She’s gone, Miguel,” said Jorge.

“Mama!” said Isabella. Then she turned to Miguel and started moaning and rubbing her stomach.

Miguel put the medicine on a dusty table and sat down slowly in a chair with one broken leg. He knew that Isabella was asking him for food. But he didn’t have any. Miguel was very sad, but he couldn’t cry now; he had to think.

There was no food in the house. There was no money to bury his mother. Miguel realized that it was time for him to try to get some money for his family. Everything they owned had been sold during the weeks of his mother’s illness. Everything, that is, except for his most precious possession—the trumpet that his father had left him. Miguel’s father had only taught him to play one song on it, but he took the trumpet out and played that one song every day. His mother would smile when he played. Then he would wipe the trumpet off and put it carefully away in the case. Miguel thought that he might have to sell the trumpet to get money to bury his mother. He opened the case where it lay and looked at it. It gleamed. He thought about how his father had said that if he ever died, that the trumpet would be Miguel’s. He felt his throat grow tight as he closed the case, but he didn’t cry.
He picked up the trumpet case and walked out the door. He walked slowly down the road to the marketplace.

As he walked, he thought of the song his father taught him. It made him feel better. He started to hum the song to himself as he approached the marketplace. The song grew louder and louder in his head, until he realized that he was really hearing it! There was a guitar player in front of the bus station in the marketplace, playing the song. People who got off the bus would stand and listen, and clap when he stopped playing.

“Hola, Miguel,” said the guitar player as Miguel walked closer. Miguel looked at the man closely—then he recognized him—he had been a friend of his father’s. They had been in a band together. “Hola, Señor,” said Miguel, sadly.

“How are you?” said the man.

Miguel told the man about how his mother had died, about having no money to bury her, and about how his sister was hungry. He even told him that he was going to sell the trumpet to get the money he needed. All the sadness welled up inside of him as he talked, but he did not cry.

The man listened with a serious expression on his face. Then he spoke.

“Miguel, didn’t your father teach you how to play that trumpet?”

“Only one song,” said Miguel. “That same song you were playing.”

“You know this song?” asked the man. “Could you play it with me? But your trumpet is a lot louder than my guitar, so put your hat over the bell of the trumpet to soften the sound.”

Miguel took the trumpet out of its case and began to play. All of his feelings poured out as he played the song. People stopped to listen and smiled with enjoyment. When the song was over, Miguel started to put his hat back on his head, but a man came up and put money in it! Then an old lady put money in. Then a mother gave a toddler some money to put in the hat.
“Now you can go buy some fruit and rice for your brother and sister and yourself,” said the man. “When you’ve all eaten, come back and we’ll play some more. But don’t sell that trumpet along the way—it is worth more to you than it is to anyone else!”

Miguel thanked him and ran up the street to the store, still carrying the trumpet in a case. He took food back to his brother and sister who ate hungrily. Then he went back to the marketplace to play his trumpet. At the end of the day, there was more money in the hat, and Miguel took it home to give to a man to bury his mother.

Every day after that, Miguel would take the trumpet to the marketplace and play. The man taught him a new song every week, and eventually another guitar player and a bongo drum player joined them. The crowds that watched them grew larger and larger, and more and more money found its way into Miguel’s hat.

One day, when Miguel had grown tall, a man pulled up in a big car and asked the band to play in his club. The band became very popular, and people would come to dance to their music. As the years passed, music from their island became famous around the world, so Miguel and the band traveled to the United States, to Africa, and to Europe. Everyone loved their music.

Miguel never forgot the feelings he had that day when he first played the song with the man. And every time he played it, whether it was in Europe, Africa, the United States, or in his country, he thought of how the song was his parents’ gift to him.
Making the Team

Writers Wanted!

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We’re looking for a few good summarizers. Coming soon, the S.H.O.R.T. News will feature a “Review” section to give you the essentials—information on a variety of books and movies. To bring you the best summary we can, the S.H.O.R.T. News is looking for individuals who know how to break down a book or movie to its most important elements and then share that information in paragraph form. If you or someone you know is a summarizing savant, or you just want to write paragraphs, please come see us at the S.H.O.R.T. News office.

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(continued on page 2)
Making the Team

Partner 1 reads page 1 and Partner 2 retells; then you switch, so Partner 2 reads and Partner 1 retells.

Mica wasn’t always a popular student at South Henry O. R. Thomas Elementary School, or the editor of the *S.H.O.R.T. School News*. In fact, if you had asked anyone on campus about Mica, that is if you could have found anyone who knew her, they would have told you that she was smart, a little bossy, and kept to herself. Mica’s only friend was a boy one year younger than she who lived down the street. His name was Radford.

Radford didn’t have many friends either. He was often teased by the other kids. When he tried out for soccer, he scored a goal for the other team. When he tried out for basketball, none of his shots found the net. During swimming tryouts, he nearly drowned! Even worse, his parents made him wear suspenders. His family didn’t have much money, so his mom bought his pants one size too big so he could grow into them. He needed the suspenders to hold them up. The kids would snap his suspenders when Radford walked down the hall. Everyone started calling him Snappy.

Mica tried hard to fit in too. She thought about trying out for cheerleading, but decided it wasn’t her thing. She did try out for the girls’ volleyball team, but fell into the net and got so tangled up, she had to be cut loose.

Mica and Radford rode the bus to school together, and it was on the bus that their friendship blossomed and school became less lonely for both of them.

One day Mica read a poster on a wall near the principal’s office: *S.H.O.R.T. News editor moves out of town. Applications for position must be submitted to Ms. Ryan by Oct. 25. New editor to be announced at Harvest Dance.* Mica grew very excited. “I can write really well!” she exclaimed. “What about you, Radford?”

“Well, actually, I’m a pretty good writer too,” Radford replied.

The *S.H.O.R.T. School News* needed a lot of help. The articles were neither short nor interesting.

In fact, they were very long, filled with unnecessary details, and very boring. Most kids never even read the school paper. So Ms. Ryan was very surprised when Mica and Radford rushed breathlessly into her classroom to apply for the editor’s position. “You’ll have to write an essay explaining what you would do to make the *S.H.O.R.T. School News* a better school newspaper,” she told them. “No problem!” cried Mica and Radford together.
Making the Team

(Partner 2 reads, Partner 1 restates)

“I’m suffocating in this costume, Dad,” Radford complained, fussing with the straw in his scarecrow costume. “Could you roll down your window so I can get some air?”

Neither Radford nor Mica had much interest in going to the Harvest Dance, but they were dying to find out who would be named editor of the school newspaper. So, as Radford’s dad drove them to school, the duo of Scarecrow and Pumpkin (Mica, in a hand-me-down costume) pledged that if one of them were named the editor, he or she would choose the other for the staff.

Just as the school band finished playing a tune (“I wish they knew some rock and roll,” one student was overheard commenting.), Ms. Ryan stepped to the microphone. “Well, it looks like the S.H.O.R.T. School News has a new editor,” she said, “It’s Mica! Give her a round of applause everyone!”

Mica froze. Her face flushed bright red. “Mmmme?” she spluttered.

“Yes, Mica,” Ms. Ryan continued, “Your suggestion that we make articles shorter and include just the important events, as well as your plans to include cartoons and book and movie reviews, earned you this prestigious position. Congratulations!”

Weeks passed and the students of South Henry O.R. Thomas Elementary found that the S.H.O.R.T. School News had really improved. The paper now reported the results of the volleyball, basketball and soccer games and had interesting articles like the one about the time the entire cheerleading squad had a bad hair day.

One day the captain of the swimming team bumped into Radford in the hall. “Hey, Snapp—I mean Radford, I liked your story about the swimming team,” he said. “By the way, cool suspenders. I like the look.”

Radford couldn’t wait to tell Mica what had happened and about how amazing it was to be on the S.H.O.R.T. School News team and about how great school was now. He went on and on. “I agree, Radford,” Mica replied, “But remember, keep it SHORT, keep it very, very SHORT!”
1. The community park near Jasmine’s house was desolate. When she walked past it on her way to school, there was always litter and junk covering the unused play area. Some residents had even started throwing their broken appliances and old mattresses over the park’s fence.

2. Jasmine had never seen anyone use the park for its true purpose. She could tell there was enough room there for people to picnic on sunny days or play games of softball and kickball. She thought it would be nice if the neighborhood could use the park. But she knew it would take a lot of work to clean it up.

3. “Dad, I want to start a volunteer group to clean up the community park,” Jasmine said. “I think people have been using it as a garbage dump for too long.” Her dad agreed. “You’re absolutely right, Jaz,” he said. “When we moved here the park was clean and people relaxed in it all the time. It seems like the neighborhood just stopped caring,” he added.

4. Jasmine decided to present her idea to her classmates at school and turn it into a volunteer project for everyone. “I think we should organize a time to meet and bring materials to clean up the park,” she said. “What do we need to get started?” Frank raised his hand and announced, “I could ask my dad to bring his big truck to the park, so we can load up all the trash and take it to the real dump. There are a lot of large items that he could easily haul away.”

5. “Thanks, Frank, that’d be really helpful!” Jasmine said. “What else do we need?” Mr. Holmgren, their teacher, recommended that everyone bring a supply of trash bags, heavy gardening gloves, and rakes to the park. “There’s a lot of paper and other things littering the ground. It’ll be easier and quicker to rake things into piles to put in bags,” he said. The class chattered noisily in agreement, talking about yard tools they could bring for those who did not have them.
6. Mr. Holmgren reminded the students that cleaning up the park would count as community service. “Remember that you’re required to log community service hours throughout the year. This would certainly count toward that requirement,” he said. “I will also come to help out and make a note that you all participated in the event,” he added.

7. Lamont stood up. “I think we should get the community involved too, not just the students,” he said. “Maybe they would like to donate money or supplies for the park,” Lamont said. “That’s a great idea,” answered Jasmine. “I did want this to turn into a charity. After all, it will take the whole neighborhood’s efforts to keep the park clean and in good repair. We could call the charity Clean for a Cause,” she said.

8. “That’s a great name!” Karina exclaimed. “This is a cause the whole neighborhood should care about,” she added. The class murmured in agreement. “Okay,” Jasmine said. “When should we meet to start work on the park?” “This Saturday!” was the immediate response from the class. “Let’s meet at the park bright and early at 8 a.m. to get started!” Harrison suggested. “Great!” Jasmine exclaimed. “Everyone remember to bring bags, rakes, gloves, and a lot of energy!”

9. The students met at precisely eight o’clock Saturday morning, dressed and ready to start cleaning up. Throughout the day, neighbors stopped by to donate money and time to Clean for a Cause. Some neighbors hauled away bags of trash as they were filled. The students all worked hard until 5 p.m. “The park is starting to shape up, guys,” Jasmine said. “I’m proud of the work we’ve done so far!” The students cheered and made plans to return to the park the next day to finish. By the end of the day on Sunday, the park was barely recognizable. The trash was gone, and the play equipment sparkled in the sunlight. “Cleaning up the park was a huge success and we owe it all to Jasmine,” Mr. Holmgren said at the end of the day. Jasmine blushed as her classmates and neighbors cheered her name.
The Wash Out

Comprehension Questions

Read *The Wash Out*, and answer the following questions.

1. In late September, a tropical storm blew up the coast and flooded the town of Greenwood. The townspeople were prepared for the storm and took extra precautions to stay safe and protect their homes.

2. Across town, people had boarded up windows to protect the glass from flying debris, and there were huge sacks of sand waiting to stop flood waters from entering homes. One place that did not receive a lot of attention was the zoo, so zookeepers tried to prepare the animals the best they could before the storm hit.

3. “I walked past the zoo last night,” Elis said a day after the storm, “and it looked terrible in there! The animals seemed okay, but there are trees knocked down in their enclosures, and the flood waters destroyed many plants.”

4. “That is a shame, those poor animals,” Elis’s mother said. “I wonder if the zoo will need help to repair the damage,” she added. “I bet they will!” Elis exclaimed. “This gives me a great idea for my class’s community-service project!”

5. That morning at school, Elis had a word with her teacher, Mrs. Epstein. She explained what she saw at the zoo and what she thought her class could do to help. Mrs. Epstein thought Elis had a marvelous idea and told her she would call the zoo immediately to ask what kind of help they needed.

6. “Class, I have an announcement to make,” Mrs. Epstein said the next day. “Elis presented an idea for our community-service project, and I have received the okay for it,” she said. “Elis, would you like to explain?” Elis stood up and told her class about what she saw when she walked past the zoo and what she thought they could do to help.
7. “This is the perfect project for us to take part in!” Isaac exclaimed. “I agree!” Thomas added. “I’m sure the zoo will need help replanting plants in the animals’ habitats. Hannah raised her hand and suggested that the students look for donations of plants from peoples’ homes and gardens. “The zoo uses all locally grown and native plants. I’m sure people would like to see the zoo looking as beautiful as it did before the storm,” she said.

8. The whole class agreed and planned their course of action. Groups of students would walk around town to ask the townspeople if they had any plants to donate to the zoo to replace the ones that had been lost during the storm. They would bring wagons with them to collect any plants that they received. Other groups of students would meet at the zoo and begin the cleaning process by removing fallen limbs and trees and fixing broken shelters for the animals.

9. Elis and her class worked hard to repair and restore the zoo. Zookeepers moved the animals to special enclosures while the kids cleaned and restored the habitats to their previous beauty. The townspeople applauded the class’s efforts and donated many plants from their own gardens. “We can’t begin to thank your class enough for all the help,” Dr. Fatima said. “The animals look happier than ever to be in their enclosures, and your assistance saved us time and stress in getting the animals’ lives back to normal.”
Me, My Friends, and the Mayor

Story by Terrence Parker
Illustration by Nicole Tadgell
Walking out of this convenience store after buying an ice cream cone and magazine reminds me of the first time I learned about social duty and what it takes to make a difference in your community. It all started on a sunny day after school—on this very street corner. Boy, that was a long time ago. But I remember it all so clearly. How things can change if you give it time. But you also have to be persistent. My name is Maurice Mario Juarez, and I have a story. It's a great story that I would like to share with you.
I kicked an old soda can, its ripped and jagged edges clanging across the empty lot and banging against the graffiti-covered wall. Then I hopped over a damp and putrid paper bag. I didn’t care to know what was in that bag. The aroma almost made me retch. Somebody really ought to clean up this place, I thought as I walked across the vacant lot.

“This place is disgusting,” I said to my friend Steve. Steve Odekirk, Steve-o, my best friend, and the kid I’d walked to school and back with every day for the last four and a half years.

“You say that every single day, Maurice,” Steve replied, “and it’s getting kind of stale.”

“I know, I know,” I said, stepping over a puddle of some sort of mystery moisture. The problem was that this vacant lot was smack dab in the middle of our route to school. So every morning, and then again every afternoon, we had to walk through it. The place was a trash-filled disaster. And over the years, it had just gotten worse. Every year another layer of filth accumulated over the last year’s filth. It was disgusting.
My old man says that about fifteen years ago, a little mom-and-pop convenience store had stood there. People used to go there to buy bread, milk, magazines, juice, and other items. But, so says my dad, the store had burned down in a fire, and the owners had never bothered to rebuild it. So, the lot where the store had stood remained vacant. Some people, I guess, turned it into their own personal trash can. At least, that’s what it looked like.

And like I said, Steve-o and I had to walk through it every day. I mean, yeah, we could’ve walked around it, but we’d still see it and smell it. It was this big, disgusting, smelly eyesore just outside of my neighborhood.

“Somebody should do something about this,” I said to Steve-o.

“Yeah? Like who?” he asked.

“I don’t know,” I replied, “maybe like me.”

“What can you do about it? You’re just a kid!” he said, laughing. “Kids can’t do anything.”

“Oh, yeah?” I replied. “You want to make a bet?”

“Whatever, dude,” Steve-o said, hopping over a pile of discarded clothes.

“Whatever is right,” I said. I vowed that I would do something about it. I didn’t know what. But I’d do something. That was for sure.
My older brother, Luis, was home when I got there. He was cooking up quesadillas for dinner. Since my mom worked long hours as a nurse at the hospital, Luis often found himself cooking dinner for the three of us. Luis was a pretty good cook, for a high-school kid. Anyhow, since I knew Luis was going to be busy in the kitchen for awhile, I thought I’d take the opportunity to discuss the vacant lot with him.

“Hey, Luis,” I said, coming into the kitchen and plopping myself down at the small, tiled kitchen counter.

“Hey, little man!” my brother said. Luis and I got along really well. I think it’s because we’re far enough apart in age. Take Steve-o and his brother Charlie. They’re only one year apart, and it seems they’re always going at it. Bickering, arguing, all that stuff.

Anyhow, my brother cut a tiny wedge out of one of his quesadillas and flipped it onto a plate. “Just a little snack for you, little man. We don’t want you spoiling your appetite before dinner, si?”

“That’s right,” I said, wolfing the snack down in two quick bites. I cleared my throat and said, “Hey, Luis, you know that trashy vacant lot over at the corner of Elm Hill Avenue and 121st Street?”

“I’m not sure I’d call it a vacant lot, brother. I’d call it a landfill,” Luis said, laughing.

“What’s a landfill?” I asked.
“It’s like a big dump. You know when you take the trash out at night and put it in the trash can down on the street? Well, where do you think that trash goes? The city comes and picks it up and takes it down to the public landfill. I’ve seen pictures of landfills in the newspaper, and let me tell you, that lot over on 121st looks pretty similar, you know?”

“I do know what you mean. Has anyone tried to do anything about that place?” I asked.

“Not as far as I know,” Luis said. “Why?”

I said, “Because I’m sick and tired of walking through that trash heap every single day, usually twice a day. And the lot is so big that it takes too long to walk around it.”

“Well, you should do something about it. It’s your civic duty,” Luis said, turning around to face me.

“What’s a civic duty?” I asked.

“It’s something we’ve been learning about in class,” he explained. “Every member of a society has the right and responsibility to try to change what that person sees as a problem.”

“Well, how do I do that?” I asked.

“First thing you do is contact somebody in the government,” he said.

“Okay,” I said, getting impatient. “How do I do that?”

“I’ll tell you what,” Luis said, turning around to flip a quesadilla that was getting brown on one side. “I’ll meet you tomorrow after school and we’ll go down to the public library. We can start there. Trust me.”

Whenever Luis had an idea, it was usually a good one. He was a great older brother. Sometimes I wished I had a younger brother myself, so I could be as cool to him as Luis was to me most of the time. “Okay, big brother,” I said.

“Good,” Luis said. “Mom should be home any minute now, so go wash up for dinner.”
As the school bell rang at the end of the next day, I heard Steve-o calling my name. “Yo! Maurice!” I heard him yell. “Wait up!”

I turned to face him as he jogged over to me. “I'm not walking home today, Steve-o,” I said. “My brother and I are going to the library.”

“The library?” Steve-o exclaimed. “Man, school's done for the day. Why do you want to go to the library?”

“My brother's going to help me do something about the vacant lot,” I said, already feeling proud of myself, although I had no idea what I was going to do.

Steve-o let out a long, low whistle. “Man, you were serious about that yesterday? Wow!” he exclaimed. “You need my help?”

Actually, I didn't know if I was going to need Steve-o's help. “Uh, not quite yet,” I said, “but I'll keep you in mind.”

“All right, peace!” Steve-o said, and he jogged away, presumably heading home through the trash-filled vacant lot. I walked outside and stood at the top of the school steps, scanning the crowd of kids waiting for their buses, waiting for rides home, all of them just hanging around, chatting about the day. Finally I spotted Luis leaning against a pole. He had his black and gray hoodie on, with the hood up over his head. His hands were thrust deep into the front pockets. He was bobbing his head to something, so I assumed he had his headphones on. Man, he looked so cool.
“Yo! Luis!” I called, loud enough for him to hear me over the music. He looked up, smiled, and took off his headphones. He pulled his CD player out of his pocket and shut it off.

“What were you listening to, Luis?” I asked.

“Oh, just some music,” he said, “from 101.1, the ‘City Jams.’”

“Cool,” I said. “So, what’s the plan? What are we going to do at the library?”

Luis said, “Well, the library’s only three blocks away, so let’s walk the walk and talk the talk, little man.” I loved it when Luis talked that way. As we walked, Luis explained that the first step in making a change is to contact your elected officials. He explained that mayors, city council members, and even senators were elected officials.

“Even though you’re too young to vote for them,” he said, “they still work for you. Take the mayor, for example. Her job is to represent every single person in this city, every single resident. That means you.”

We came to the library, and Luis opened the door. “So, what we want to do is contact the mayor to tell her about our problem, that we want something to be done about the trashy lot on 121st.”

“How do we do that?” I asked. I still didn’t understand why we were at the library.

“We do that,” Luis said as we walked over to the information desk, “with e-mail.”
Chapter 4

“W”ell hello, Luis,” the librarian said as Luis and I approached the desk.

“Hello, Ms. Jackson,” Luis said. Then, turning and facing me, he said, “Ms. Jackson, this is my kid brother, Maurice.”

Ms. Jackson looked like a kind woman. She looked across the desk at me. “Well, hello, Maurice,” she said. “Welcome to the library. Is this your first time here?” It actually was my first time, and I told her so.

“Well then, let’s get you a library card.” She reached into a drawer and then handed me a form. I had to fill out my name, address, and the name of my school. As I did that, Luis spoke to Ms. Jackson.

“Ma’am,” he said, “I’d also like to get Maurice access to the computers. Is that possible?”

“Sure thing,” Ms. Jackson said. “I’ll have Mr. Wilson, the computer technician, create an account for him. Maurice will be able to access it from the computers by tomorrow. Okay?”

“That’s fine,” said my older brother. “We can use mine today.”

I finished filling out the form and handed it to the librarian. She said, “Very well, Maurice. I’ll have your card ready for you by tomorrow, okay?”

“Okay!” I said. Then I asked, “What will this card mean?”

Ms. Jackson said, “The card will allow you to use the computers here and check out any book in the entire library, except for resource books, like the dictionaries and encyclopedias.”

“How much will it cost?” I asked, thinking about the seventy-five cents I had in my pocket.
Luis and Ms. Jackson both laughed. “It won't cost a cent,” she said. “This is a public library. Everything's free.”

I thanked Ms. Jackson, feeling sort of silly. Then Luis said, “C’mon, little man, let’s head over to the computers.” He and I walked over to the bank of computers on the far wall. A few people were using them, but we found a free one. Luis grabbed an extra chair and pulled it up to the computer, and we sat down.

Luis said, “Okay, so you don’t have an e-mail account yet, but you will soon. Today we’ll just use mine.” I didn’t have any idea what he was talking about, but I just sat and watched. He moved the mouse, which was a small device connected to the computer, and the screen lit up. The mouse moved a small cursor, which looked like a tiny arrow, across the screen. Luis moved the cursor over to a little box on the screen that had the words “PUBLIC E-MAIL SERVER” underneath it. He clicked a button on the mouse, and a new box opened up on the screen.

“Whoa! Cool!” I said.

“It is pretty cool,” Luis replied. I looked at the box. The box seemed to want Luis to type in something called a USER NAME and a PASSWORD.

“What do those things mean?” I asked Luis.
“Well,” he said, “my user name is the first initial of my first name and then my last name. So, since I’m Luis Juarez, my user name is L-J-U-A-R-E-Z.” He typed that into the box as he spelled it. Then he said, “My password is a private word that only I know, so nobody else can use my e-mail without my permission.”

Then he hunched over the keyboard and privately typed something in. He pressed RETURN, and another box popped open. It read, “Welcome, LJUAREZ!”

“Whoa,” I said quietly, because I remembered we were in a library. “That’s really cool!”
Chapter 5

The box on the screen told Luis that he had three new messages. “I’ll read those later, when I have more time,” he said. “Let’s get to work on what we came here to do, okay?”

“Okay,” I said. So Luis clicked on the words “COMPOSE NEW MESSAGE.” Yet another new box opened up. “This is the e-mail we’re going to send,” he said. The box had a place for an address, a subject, and an e-mail message.

“Who are we going to e-mail?” I asked.

“We’re going to e-mail the mayor,” he whispered.

“Really?” I whispered back.

Luis replied, “That’s right. Now, I happen to know that Mayor Grisham’s e-mail address is mgrisham@mayor.us.” He typed that into the address box. Then he said, “Now, I know that when your account is set up, your address will be mjuarez@library.org. I know that because my account is ljuarez@library.org, and we have the same last name.”

He went on to explain that most e-mail addresses were made up of someone’s name followed by the @ sign. Then he explained that the words after the @ sign form what is called a domain name. “Everyone in the mayor’s office has a mayor.us domain,” he explained. “And everyone at the library has a library.org domain. It’s really pretty easy to understand once you get used to it.”
I really wasn’t sure how easy it was, because I didn’t understand much of what Luis was saying, but I decided just to follow along. Luis continued. He said, “So, I’m going to send this e-mail to the mayor and also to you. You’ll be able to access it tomorrow. Now, every time you send an e-mail you have to explain what your e-mail is about. This is what you write in the subject line. The subject line helps the person you’re writing to decide whether the e-mail is important. We really want the mayor to read our e-mail, because it’s important to us. So, we’ll write ‘IMPORTANT POLLUTION PROBLEM’ in the subject line.” Luis wrote that, and then he said, “Now, let’s get to work writing the e-mail itself.”

I was beginning to catch on, if only just a little. “Let’s do it,” I said.
Chapter 6

After working on the e-mail together for about half an hour, this is what Luis and I finally came up with.

From: ljuarez@library.org
To: mgrisham@mayor.us; mjuarez@library.org
Subject: IMPORTANT POLLUTION PROBLEM

Dear Mayor Grisham:

My name is Luis Juarez, and I’m a senior at Franklin High School. My younger brother Maurice is a student at Baker Elementary School. We are writing to you to discuss the issue of the vacant lot on the corner of Elm Hill Avenue and 121st Street. As you may know, that vacant lot is very polluted. It is covered with trash. Not only is the vacant lot an eyesore, but we feel that it is a potential health risk to the residents of our neighborhood. Maurice and some of his classmates have to walk through that lot every day. Doing this is dangerous and cannot be good for his health.

We would like to request that the city do something about this problem. Maurice and I are very proud of our city and our neighborhood. We both feel that you have done a fabulous job so far as our mayor. We believe that you honestly care about the people of our city and want them to be happy and safe. Maurice and I would both be willing to help in any way as well. As we have mentioned, we’re proud of our city, and we’d like to see the city government do something about this problem.

Thank you in advance for your consideration. Any ideas you may have would be greatly appreciated. We await your response.

Sincerely,

Luis and Maurice Juarez

When Luis finished typing, he turned to me and asked, “Well, what do you think?”
“Is the mayor really going to get this?” I asked. I couldn’t really believe that we were going to send it to the mayor.

“She will, as soon as I click SEND. And what’s better, I remember when she was running for office. She kept on saying that she really wanted to hear from the citizens of the city. So if that’s really true, she should respond pretty quickly. I’ll bet we’ll both have e-mail waiting for us by tomorrow. We’ll see what she says then. So should I click SEND?”

“Go for it!” I said, excitedly. Luis clicked SEND, and the e-mail was sent to the mayor.
Chapter 7

That night I told my mom all about what Luis and I had done. My mom was pretty impressed. “I didn’t know you even knew how to use a computer, Maurice,” she said as we sat down to a late dinner.

“Well, at first, Luis showed me how to use his account. Then, after we were done, it turned out they were able to start up my account early, so the technician came by, and he and Luis showed me how to access my very own account. I can’t wait until tomorrow, when there’s an e-mail waiting for me from the mayor!”

“What do you think Mayor Grisham will say, Ma?” Luis asked, filling his plate with the mashed potatoes he’d made when we had returned from the library.

“Hard to say, hard to say,” my mom said. “She claims to be really responsive to the people’s needs, but I know she’s also really busy. I mean, she is the mayor, after all.”

All of a sudden, I was worried. “You mean she might not respond?” I exclaimed. “But Luis, you said she would! You said she cared about what the residents of the city had to say!”

“Calm down, Maurice,” said my mom.

“Yeah, calm down,” Luis said. “I think what Mom means is that she’ll probably respond, but we can’t be sure what she’ll do about the vacant lot. Maybe she’ll think she has more pressing issues to deal with. I mean, like Mom says, she is the mayor after all.”
“What could be more important than getting rid of trash and pollution?” I demanded. I could tell I was acting unreasonably, but I felt like Luis had been getting my hopes up.

“Little man,” Luis said, trying to calm me down, “let’s just wait to see what happens, okay? But remember, no matter what happens, you’ve already taken part in the city’s government. My teacher, Mrs. Smith, says that there are some grown-ups in this city who don’t even vote! In fact, not even half of the residents of this city vote. But you’re still just a kid, and already you’re making your voice heard. You should be proud of that, little man, no matter what else happens.”

For some reason, that just didn’t seem like enough. But I tend to follow my brother’s advice, so as I sat there quietly eating my dinner, I decided I’d just wait to see what the mayor said.
The next day, after class got out, I told Steve-o I was going to the library. “Do you want to come?” I asked.

“Nah, man, like I told you, school’s out for the day. Last place I want to go is to the library,” he said.

“All right, suit yourself,” I said, and I walked the few blocks to the library.

When I got there, Ms. Jackson was sitting where I’d last seen her, at the information desk. “Oh, well hello, Maurice!” she said in that kind, sweet voice of hers. “It’s so nice to see young people your age coming into our library two days in a row. Hold on, I have something for you.” She reached into her desk and pulled out a small card. Handing it to me, she said, “Here is your official library card. You are now an official member of the Beacon Street Public Library. Lending privileges are yours, and you are free to use any of the computers and other resources here. Welcome, Mr. Juarez.”

“Thanks!” I said, taking the card and putting it in my pocket.

“So how can I help you today, Maurice?” she asked.

“Oh, I’m just going to check my e-mail right now,” I said. “I’m waiting for a very important message.”

Ms. Jackson smiled. “Oh, well that sounds very exciting! Would it be too nosy of me to ask from whom you’re expecting an important message?”

“Oh, only from the mayor,” I said, smiling.

“My, that’s very exciting! Very exciting indeed!” she said. I thanked her and walked over to the computers. I sat, and remembering what I’d learned yesterday, I checked my e-mail. There it was! An e-mail from the mayor! Here’s what it said.
I was stunned. What my mom and Luis had been worried about was actually coming true! It didn’t look like the mayor was going to do anything about the vacant lot. What a letdown! She was giving me what some adults call “the runaround.” I logged out of the e-mail program, got up from my chair in the library, and left without even saying good-bye to Ms. Jackson.
Slowly and dejectedly I walked home, kicking pebbles along the way. I couldn’t believe that the mayor had let me down. Sure, she claimed that she cared, but it certainly didn’t seem that way. I mean, how could she brush off me and Luis like that, especially since she lived so close to the trashy vacant lot herself? Didn’t she want to do something about it? I was confused.

Luis wasn’t home when I arrived, but my mom was there. She was relaxing on the couch; she was still wearing her nurse’s uniform so she must have just beaten me home. She was idly leafing through a magazine, which she liked to do after a long shift at the hospital. I could tell she was relaxing, and I didn’t really want to bother her too much. Still, I wanted to see what she had to say about the mayor’s e-mail.

I cleared my throat. “Uh, Mom?” I said quietly. “Sorry to bother you, but can I talk to you for a minute?”

She put down her magazine and looked up at me and smiled. She patted the spot on the couch next to her and said, “It’s no bother. Sit down, Maurice. What’s up?” I sat down next to her on the couch and told her what the mayor’s e-mail had said.

“Oh, I’m sorry, son,” she said. “You must be very disappointed.”

“Well, I am,” I said. “I mean, how come the mayor won’t help? It doesn’t make sense! She even lives in this neighborhood!”
Mom put her arm around my shoulder and said, “Son, sometimes adults have to make hard decisions. Cleaning up a big vacant lot like that can take a lot of time and money. Maybe the city doesn’t have the manpower to spare.”

“What’s manpower?” I asked.

“It’s the number of workers you need to complete a project. And the mayor would have to take those workers from other places, like from the department of public works. And if she couldn’t spare those workers, then she’d have to hire outside workers or pay the city workers overtime. Both of those choices can be very, very expensive.”

I suddenly had an idea. “But what if it wasn’t such a big deal? What if the job wasn’t as big as it seems?”

“What do you mean, Maurice?” my mom asked. “I’ve seen how dirty that vacant lot is. It’s a real big job!”

I smiled to myself. “Just you wait and see, Mom. Just you wait and see. Do you mind if I use the phone in your bedroom? I have some phone calls to make.”
It was a busy night. I was on the phone for what seemed like hours. I had a lot of phone calls to make. My first was to Steve-o. When I called his house, he picked up on the first ring.

“Hey, Steve-o,” I said.

“Maurice! Long time no see! I’ve been walking through the vacant lot every day after school without you for, what, a week and a half?” he joked.

“Ha ha, very funny,” I said. Then I got down to business. The next day was a Saturday. “Listen, what are you doing tomorrow?” I asked him.

“Nothin’, why?” he asked.

“Because I need your help. I’m going to clean up that vacant lot, and I can’t do it on my own,” I told him.

“Why on earth would I want to help you clean up a vacant lot on a Saturday? It’s the weekend, man! I don’t want to work on the weekend! It’s bad enough that Mr. Torrance gave us so much homework this weekend.”

Steve-o had a good point. How was I going to convince him to help me? I mean, I was asking him to give up his Saturday to do some hard work. But I really needed his help. Then I thought of something. So I said, “Listen, Steve-o. You know how you’ve been talking about Tally, from our class, and how you’d like to impress her?” Tally sat two rows in front of me and Steve-o, and I thought Steve-o kind of liked her.

“Yeah?” he said.
“Well, what if I could get her to join us? You could show off how strong you are, hauling big bags of trash around.”

Steve-o thought for a minute. Then he sighed and said, “You drive a hard bargain, Juarez. But okay.” I thanked him and told him to meet me at my house at ten o’clock in the morning. I told him to bring trash bags. Then I called up another friend of ours, a girl named Monica.

When she answered I said, “Monica? Hi, this is Maurice.” Then I explained why I was calling her. Monica and I had been in the same class for quite a few years, so she was willing to help me out. She was also friends with Tally, so I asked Monica if she would get Tally to help us as well. Monica promised that she would. Before she hung up, I asked her for one last favor. Monica’s father, Mr. Montgomery, sometimes used his pickup truck to haul things for people on the weekend. “You think your dad could help us out?” I asked. She said she didn’t think that would be a problem either. So I told Monica that she and Tally should meet us at 10:15 a.m. at the vacant lot. Her dad would meet us there at three o’clock.

“See you there!” she said. Things were beginning to come together.
Chapter 11

Steve-o showed up at my door at 10:00 a.m. on the dot. He had a box of heavy-duty trash bags under his arm. “Will these do?” he asked.

“They sure will, Steve-o. Thanks a lot.”

“This better be fun, Juarez,” he said. We walked to the vacant lot. Monica and Tally arrived there just about the same time we did. We all greeted one another.

“Hi, Steve-o,” Tally said, smiling. Steve-o just blushed and kicked a can on the ground. Monica and I started giggling.

“Okay, troops, let’s get to work,” I said, pretending I was the captain of a ship. “Just clean up all the objects you can. Fill up as many trash bags as you like. But don’t make ’em too heavy, or only the muscleman here will be able to carry them,” I said, grinning and pointing at Steve-o.

“Knock it off, Juarez,” he said, smiling and punching me in the arm. We all got to work. Believe it or not, it was actually kind of fun. It was hard work, but we made the most of it. At one point, Monica and Steve-o each found old trashcan lids and sticks that sort of looked like swords. They joked around for awhile, pretending they were gladiators swinging their swords and blocking them with shields. Whenever Tally found something interesting, she would make up a story about it. For instance, when she found an old discarded teddy bear, she said, “Look at this poor teddy bear.”
“He was probably rudely discarded by some callous boy who thought he’d become too old to play with teddy bears and started playing with action figures instead. You silly boys!” she said. I chuckled and overheard Steve-o say, “Hey…wait a minute!”

The sun rose higher and higher in the sky, and we were all getting kind of hot and sweaty. Luckily, my mom showed up with a cooler full of lemonade and peanut-butter-and-jelly sandwiches.

“All right!” I said, diving into the cooler.

“Hey, Juarez! Ladies first!” commanded Steve-o. I pulled away, and Steve-o graciously bowed to the two girls. “After you, my ladies,” he said in his best French accent.

“Quite the gentleman,” joked Tally, and all four of us laughed. After a much-needed lunch, we got back to work. By the time Mr. Montgomery pulled up in his pickup truck at three o’clock, we had made quite a dent. There were about twenty bags of trash piled up on the corner.

“This doesn’t even look like the same vacant lot!” Mr. Montgomery said. “Very impressive, kids! Hey boys, come help me throw these bags into the back of the truck!”
Steve-o and I helped him, and after awhile, all the bags were in the back of the truck. “I’ll go ’head and take these down to the city landfill,” said Mr. Montgomery. “You kids should go on home. Oh, Tally, Monica’s mother called your mother, and you can have dinner with us tonight if you’d like. You boys too! Ms. Montgomery’s fixing up some homemade pizza. I’ve already talked to both your parents, and it’s okay with them.”

“Hooray! Pizza sounds great!” we all shouted.

Mr. Montgomery said, “Nothing better than a good meal after a hard day of work. See you at home.” Then he climbed into his pickup truck and drove down the street. We all wiped our brows and walked over to Monica’s house. We were all tired, but happy.
Chapter 12

As it turns out, we weren’t the only people invited over to Monica’s house for dinner. Monica’s parents had invited my brother, my mom, Tally’s parents, and Steve-o’s dad as well. When we got to Monica’s house, they were all waiting for us.

“Here come the urban saviors!” shouted my brother when we all walked into the house. Everybody clapped and cheered for the four of us, and, well, we all felt pretty good. We retold stories about all the fun we’d had that day. Tally and I mimicked how Steve-o and Monica had acted when they had pretended to be gladiators. Everyone laughed. Tally joked about what a chivalrous gentleman Steve-o had been when he’d insisted that the girls eat lunch first.

“Yeah, that Steve-o, what a gentleman,” I said, rolling my eyes. Everyone laughed again. We all had a good time.

Later, when my mom, Luis, and I were walking home, I started thinking about something.

“What’s on your mind, little man?” asked my brother.

“Well, I was just thinking,” I said. “I’m still confused. I mean, in only a few hours, just four kids made quite a difference in that vacant lot. I mean, it was hard work, but it was kind of fun. And I don’t understand what the mayor was saying about ‘budgets’ and ‘resources.’ This project didn’t take any time at all, and it was really cheap. All it cost was the price of some trash bags. How hard could this be?”
My mother softly giggled as we walked. "You know, Maurice, you're right. Sometimes all it takes is a little hard work. Adults sometimes make things so complicated. But like I said, you should be very, very proud of yourself. You've taken two of the most important steps when it comes to getting involved. First, you made your concerns known to the people who get paid to listen to you. Then, when that didn't work to your satisfaction, you took matters into your own hands. That's sometimes how things get done."

I felt my face get red. "Oh, well, it wasn't really much. I did it for the community, for the neighborhood."

"Well, I'll tell you what, little man," said my brother. "When you're old enough and it's time for you to run for mayor, I'll be sure to vote for you."

My mother and I laughed. Then I said, "I'm not letting this current mayor off that easily. I'm going to e-mail her tomorrow."

"You do that," my mom said.
After lunch the next day, I walked over to the library. I went inside and was surprised to see Ms. Jackson at the information desk. “Ms. Jackson?” I said, “Don’t you ever take a day off?”

Ms. Jackson chuckled. “Oh, Maurice. I get enough time off every now and then. As a matter of fact, I took yesterday off and rode down to the lake with my daughter. But it’s very kind of you to be so concerned about my welfare, young man.” I just rolled my eyes, and that made Ms. Jackson laugh even harder.

“I’ll just be at the computer,” I said. I walked over to the computer and logged on to my e-mail account. I opened a new message. I thought long and hard about what I was going to say, and I even wrote and rewrote it several times. I made sure to send a copy of the e-mail to my brother. When I was finally finished, I was quite proud of what I’d written. It was the first e-mail I’d written, and I’d done it all by myself. What’s more, I was going to send it to the mayor!

Anyway, like I say, it took me a while to write it, but I finally got it perfect.
When I finished, I clicked SEND. I sat back on my stool. I wondered if this letter would make the mayor get involved. I hope she understood my point; if just a few kids can make a difference, then a whole bunch of city workers should really be able to finish the job. I guess I’d have to wait and see.

I logged off the computer and said good-bye to Ms. Jackson. “Leaving so soon, Maurice?”

“Yeah, I’ve got studying to do at home,” I replied.

“Well, good. But feel free to study in here, in the peace and quiet of the library, whenever you like,” she said.

“Thanks, Ms. Jackson,” I said. “Maybe I’ll do that sometime. Good-bye.” I opened the door to the library and stepped outside. It was nice outside, so I walked home whistling a happy tune.
Chapter 14

The next day Steve-o and I walked to school together. We still had to walk through the vacant lot, but it was a lot better. Now, it wasn’t at all perfect; there was still a lot of trash strewn about, mostly objects that had been too large for the four of us to move. Still, it wasn’t as bad as it had been, and I told Steve-o that I thought so.

He agreed. “It even smells better, I think,” he said.

During school that day, Mr. Torrance mentioned that he had heard what Steve-o, Monica, Tally, and I had done over the weekend. “I just wanted to mention,” he said to the class, “that four of our classmates did something very special. They took the desire to solve a problem into their own hands. They worked on Saturday to clean up a trash-filled vacant lot in our neighborhood. They proved that they are great citizens. Here’s to Steve-o, Tally, Monica, and Maurice!”

The class clapped and cheered. Even though I’d cleaned up the vacant lot to help the neighborhood, I have to admit that it felt pretty good to receive recognition for it. After school, I decided to go back to the library to see if Mayor Grisham had responded to my last e-mail.

“Back again, are we?” asked Ms. Jackson. “You’re becoming quite the patron!”

“Just checking my e-mail again, Ms. Jackson!” I said as I logged on to the computer. And sure enough, there was an e-mail from the mayor’s office. But it wasn’t from the mayor.
What? What was this? My friends and I had worked so hard. I really wanted the mayor to understand how easy it would be for her city workers to finish the job. And now I couldn’t even get through to her. I’d almost had enough with this mayor. Like before, I logged off the computer and walked out of the library without saying good-bye to Ms. Jackson.
Chapter 15

I walked the few blocks home through the vacant lot, and Luis was there when I arrived. He was on the couch watching television. “Hey, little man,” he said when I came through the door. “How’s it going?”

I plopped down on the couch next to him. Then I told him about the e-mail I’d received from Mr. Rice, the assistant to the mayor. “Can you believe that?” I asked, incredulously. “I mean, now I can’t even get through to the mayor.”

Luis had a look in his eye, like he was hatching some sort of plan in his head. He shut off the television with the remote and turned to me. “Looks like you’re going to have to finish this job on your own, little man,” he said.

“But there’s a lot of trash that I can’t pick up because it’s too big,” I complained. “I mean, there are old logs, bricks, and remnants of that old convenience store that I can’t move.”

“Well, I’ll tell you what,” Luis said. “If you and your friends can put in another couple of hours on Saturday, I’ll make it worth your while.”

“What does that mean?” I asked.

“You’ll see. Call your friends, and see if you can get them to help out again. Trust me.”

Like I’ve said before, Luis is my older brother, and I trust him. So I got on the phone. Monica and Tally were more than willing to help.

“Sure!” Tally said.

“Absolutely!” Monica said.

“Fine, dude, whatever,” said Steve-o, “but this is the last Saturday I’m going to give up to this project. We’re supposed to be having fun on the weekend.”
“Didn’t you have fun last time?” I reminded him.

“Yeah, I guess I did,” he said with a sigh.

So all during the school week, the four of us wondered what kind of plan my brother had for us. When Saturday came around, the four of us showed up at the vacant lot. “Back to work, guys!” I said, and we got to work. And I have to say, it was just as fun as it was the first time. We worked hard all morning. By about lunch time, we’d bagged up all the trash that we could carry. All that remained were the bigger pieces of trash, the things you’d need a bulldozer or a backhoe to move.

Then Luis showed up. He had a black nylon bag slung over his shoulder. He opened it up and pulled out this small machine that looked sort of like a cellular phone.

“What’s that?” Steve-o asked.

“This, my friends,” said Luis, “is a digital camera.”
“Cool! A digital camera!” I said.

“I’ve heard of these things before,” said Steve-o.

“Where’d you get it?” I asked. He said that he’d borrowed it from his school’s journalism department. When he’d told the journalism teacher what he was going to do with it, the teacher had been more than willing to lend it to him.

“What are you going to do with it?” asked Tally.

“Well,” said Luis, “I’m going to take some pictures with it and send them to the mayor. Instead of just telling her how much you guys have been working, I’m going to show her. Then we’ll see what kind of response we get.”

“Cool!” we all said. Luis spent about ten minutes walking around taking digital pictures. He took pictures from all sides of the vacant lot, making sure he shot all the corners.

When he finished, he asked, “Now, who wants to go with me to the library and e-mail these to the mayor?” Monica, Tally, and Steve-o all said that they didn’t need to come.

“Just make sure that you include our names in that e-mail!”

“Thanks guys, and I sure will!” I said. The rest of the crew went home, and Luis and I went to the library.

When we walked in, there was Ms. Jackson again, sitting at the information desk. “Ah, my favorite patrons, the Juarez brothers,” she said with a smile. “More e-mailing, I presume?”

“That’s right, Ms. J.!” Luis said with a smile.

“Well, go to it boys!” she said. We walked over to the computers and logged on.

“You’ve done all the work, so let’s send this from your e-mail,” Luis said. “I’ll show you how to attach the pictures to the e-mail.” We logged on to my e-mail account and composed a letter. Luis helped me write it.
Before we pressed SEND, Luis showed me how to plug the digital camera into the computer and attach the pictures from the camera to the e-mail. “That’s called uploading,” Luis said.

“Cool!” I replied. “The mayor ought to be impressed now.”

“I think she will be,” Luis said.
Chapter 17

After school on Monday, I went to the library to check my e-mail. This time, Steve-o, Monica, and Tally all came with me. “My, Maurice, you’ve brought us even more patrons!” said Ms. Jackson when she met us at the information desk. I waited patiently while the other three kids signed up for library cards. After they had, we all walked over to the computers. There weren’t enough spare chairs to pull up, so Steve-o had to stand behind me.

I showed the group how I log into my e-mail. They were pretty impressed. “That’s pretty cool!” Tally said.

“You haven’t seen anything yet,” I said as I clicked on the message from the mayor that was waiting for me.
“Hey! The mayor is talking about us!” Steve-o said, almost too loud for the library. “That’s so cool!”

“Way to go, Maurice!” said Monica.

“Yeah!” said Tally.

“I couldn’t have done this without you guys,” I said. I logged off, as proud as I’ve ever been.

“We’ll see you children soon,” said Ms. Jackson as we left the library, our smiles as wide as they could possibly be.
Like I said at the beginning, that was a long time ago, but I remember it all really well. The mayor was true to her promise, and the next day we all went to the vacant lot after school. There were bulldozers, cranes, and backhoes on the lot. When we showed up, the mayor herself was there. She saw us and came over.

“Which one of you is Maurice?” she asked, and I introduced myself. Then I introduced my friends. The mayor shook all of our hands and then called over a reporter and a cameraman. The reporter turned out to be from the city’s television news station. She interviewed me and my friends, and then she interviewed the mayor. I remember that Mayor Grisham said, “These four children embody what we want to see in our future. They’ve proven that they have a devotion to making things better, and I know that they’ll never stop working for the good of their neighborhoods and communities. I commend these four children.” Everyone who was there started applauding: my mom and Luis, the other kids’ families, Principal Meyers, and even our teacher, Mr. Torrance. Even strangers that I’d never met were applauding. Then a photographer from the newspaper took pictures of me and the construction.

By the next year, a man named Mr. Paulson had bought the vacant lot and built a new neighborhood convenience store. Every time I walk in the store, I think of the days my friends and I spent cleaning up the lot. It’s hard not to, especially since Mr. Paulson reminds me of the work whenever he sees me. He even has my picture from the front page of the newspaper hanging behind the counter. He wants to remind neighborhood customers that it was me who made it possible for a new store to be built.

What did I learn from this whole event? I learned quite a few things. I learned that sometimes adults really can make things more complicated than they need to be. I learned that sometimes making things better can be really hard work. I learned that I can count on my friends for just about anything. But most important, I learned that if you really want something done, it takes devotion and persistence. Sometimes things aren’t easy, but they’re worth it. Just ask me, my friends, and the mayor.
Leopards

by Dr. Nick Brown
Where to find a leopard

Leopards are very adaptable animals. They can be found living throughout parts of Africa, Asia, India, China, and Russia. Their adaptability has helped leopards to survive. When humans take over land where leopards are living, leopards simply move on to another location. They can live in both warm and cold climates and in many different types of environments, including mountains, forests, jungles, grasslands, and even deserts. Because they use trees for protection, leopards especially like to live in or near a forest.

How to spot a leopard

Leopards come in different sizes, depending on where they live. They can range from five to nine feet in length and weigh from 60 to 140 pounds. Even though this sounds huge (imagine having a pet cat that large), leopards are actually smaller than other types of big cats like lions and tigers. All leopards have spotted fur, but not all leopards look alike. The color of their fur can range from yellow to tan to dark brown to blend in with the color of their environment. Leopards that live in forests, for example, have darker fur than those that live on the grassy plains. Even their spots are different. Some leopards, like those found in the Samburu Wildlife Reserve in Kenya, have round spots, while in other places, the spots are square.
What’s for dinner?

Leopards are meat eaters that hunt other animals for food. Some of the leopard’s favorite foods are medium-sized animals like monkeys, but it will also attack and eat animals much larger than itself like zebras and giraffes. If it’s very hungry, or if it can’t find animals to hunt, leopards will eat birds, fish, or even insects. Every leopard sets up a zone where only it is allowed to hunt called its territory. The leopard marks the boundaries of its territory with scents that warn other leopards to stay away.

“There’s a cat stuck in that tree!”

Even though leopards are very large, they are very good at climbing trees. After a leopard kills an animal, it often carries the food into a tree to eat. This way, other animals, like lions, can’t steal any of it!
Night life

Leopards are usually nocturnal animals. They sleep for most of the day and hunt at night. Leopards can see in the dark, giving them a huge advantage over the animals they hunt. Even if an animal has some ability to see in the dark, the leopard’s spots camouflage it, so its prey can’t see it coming until it’s too late.

Baby leopards

Baby leopards, or cubs, live with their mother until they are two years old. For the first three months of their lives, their mother feeds them. Once they reach the age of three months, cubs start hunting with their mother. Cubs practice their hunting skills by pouncing and jumping on their mother’s tail. The mother leopard also cares for her cubs by cleaning them with her tongue and carrying them to safety when there is danger.

Leopards in danger?

Although leopards are not an endangered species, they still need human protection—from hunters who kill leopards for their fur, from farmers who set out poisoned food to kill leopards so they won’t eat their cattle, and from people who destroy the leopard’s habitat by cutting down forests and building on the land where leopards live.

A leopard cub starts hunting at age three months.
In the African language Swahili, the word for leopard is *chui*.

**“Usually leopards are nocturnal, but in Samburu they can be seen out and about during the day!”**

_Samburu leopards_

Leopards thrive in the Samburu Wildlife Reserve. The reserve has a mixture of environments for leopards to live in, including a scrub desert (a desert with some small bushes and trees), a savannah (dry grasslands), and small hills. There are many animals for the leopard to hunt, such as monkeys, zebras, and antelopes. Samburu leopards are special. Usually leopards are nocturnal, but in Samburu they can be seen out and about during the day! The reason for this may be that the color of their fur blends in so well with the colors of Samburu that leopards can hunt there both day and night. The Samburu Wildlife Reserve is very important because it is a place where leopards can live freely in a natural, protected habitat.
There’s a Wild Thing in My Bedroom!
There's a Wild Thing in My Bedroom!

**Range:**
Africa

**Description of Assassin Bugs:**
The assassin bug is a predatory insect. It is about 1" long and mainly black with bright yellow legs and two white spots on its wing cases. Although it has wings, the assassin bug cannot fly. It catches its prey by a combination of stalking and ambush. It leaps on the prey, grasping with its two front legs, and follows by stabbing with its sharp, needle-like mouthparts and injecting a venom, or poison, which paralyzes the prey. The male and female assassin bugs look just about the same.

**To Keep Assassin Bugs You Need:**
Use a small glass or plastic aquarium with a well-ventilated lid. Line the floor with paper. Put moist vermiculite in a clean margarine tub in the aquarium. The assassin bugs should use the tub for egg-laying. Pieces of wood and plastic plants can be added to the set-up to give the assassin bugs places to climb and hide, and to make the set-up look pretty. Add a heating pad to keep the atmosphere warm.

**Feeding Assassin Bugs:**
Assassin bugs are predators of other insects and will tackle anything they can subdue. They can be fed live crickets, mealworms, giant mealworms, and small locust hoppers. Baby assassin bugs, which are called nymphs, should first be fed smaller insects, such as fruit flies, aphids, micro crickets, and buffalo worms (tiny mealworms), and can be offered larger insects as they grow. They can be given a light spray of water each evening and will drink from droplets that accumulate. Also a shallow water dish in the set-up will allow constant access to water as required.

**Handling Assassin Bugs:**
Assassin bugs should not be handled, because they can give a very painful bite. Also, they can shoot their venom up to a distance of 12" with great accuracy (even backwards over the shoulder), which can cause skin irritation and even temporary blindness if the venom hits the eye.
Leaping Red Kangaroos

Range
Australia

Description of Red Kangaroos
Red kangaroos are the largest living marsupials in the world. Males grow to be about six feet tall and can weigh up to 200 pounds; females are a little smaller. The male kangaroos of this species have reddish-brown fur, and the females have blue-gray fur. The red kangaroos have large hind feet and long, muscular tails that help support their weight. In contrast, these kangaroos have short forelegs with small paws. Their paws are very dexterous, so the kangaroos can hold food, fight, or groom with them despite their short limbs. Female kangaroos have a pouch.

Remarkable Kangaroo Joeys
Red kangaroos belong to the marsupial family, which means their young are born very premature and finish developing outside of the mother, often in a pouch. When a kangaroo mother gives birth, a tiny baby, only about one-inch long, crawls up her stomach and into her pouch, where it attaches itself to a nipple. The baby kangaroo, which is called a joey, stays attached to its mother’s nipple for about two months. All marsupial babies are called joeys regardless of their gender. When it is large enough, a joey leaves its mother’s pouch to explore the world. When threatened or scared, it climbs back into the pouch until the danger is gone. Joeys sleep in their mothers’ pouches until they are about eight months old.

Kangaroos are extremely fertile, even though they only give birth to one joey at a time. Females may have three joeys during a two-year time span. Joeys are born after only thirty-three days in the womb, and mothers can mate again just days after their joeys are born. Kangaroos can delay giving birth to their young, so it is possible for kangaroos to have a joey living outside the pouch, a joey in the pouch, and a joey waiting to be born.
How Kangaroos Use Those Long Legs

Kangaroos are the only large mammals that get around by jumping. With their long legs, kangaroos can cover up to twenty-five feet in just one jump and can move at speeds of about thirty-five miles per hour. Their heavy tails help them balance as they leap forward. When kangaroos aren’t leaping, they can graze in a “five-legged” movement, where they balance on their forelegs and tail while moving their hind legs forward simultaneously, or they can sit in a tripod position, using their hind legs and tail for balance.

Red kangaroos use their feet for self-defense as well as travel. To fight off dingoes, who may try to eat their joeys, kangaroos can lean back on their tails and kick out with their large feet. Male kangaroos will also do this against each other when they fight over females. They lean back on their tails and kick each other with their feet and then hit each other with their front paws. This is referred to as kangaroo boxing.

A Mob of Kangaroos

Red kangaroos live in groups of about ten that are usually made up of a few females, their young, and one or two males. A group of kangaroos is called a mob. Sometimes, if there is a lot of food in one area, thousands of kangaroos will congregate to feed. Red kangaroos are herbivores. They feed on grasses and flowering plants, getting most of their water from their food. Kangaroos are crepuscular and nocturnal, meaning they are most active at twilight and night.
Kangaroo Threats

Red kangaroos are not considered threatened or endangered. They live all over the Australian continent, especially in the dry grasslands. Because of their size, adult red kangaroos do not have many predators. Joeys are vulnerable to large hunting birds, monitor lizards, and dingoes. The main threats to red kangaroos are humans. Humans hunt kangaroos for their skins and for meat, which has become a very popular meal.

Farmers in Australia often think of kangaroos as pests. Kangaroos compete with livestock, such as sheep, for food and grazing ground. In areas where grasses are limited, kangaroos reduce the amount of food available for sheep or cattle. Kangaroo hunting is regulated by the Australian government, much like deer hunting is regulated in the United States.
Cuddly Koalas

Comprehension Questions

Read *Cuddly Koalas*, and answer the following questions.

Range
Australia

Description of Koalas

Koalas are herbivorous marsupial mammals that live their entire lives in trees. They have gray to brown fur, depending on whether they live in the northern or southern parts of Australia. Their fur coats are thick and woolly to protect them from high and low temperatures and rain. Koalas are easily identified by their round, furry ears, which have white fur on the inside, and by their large black noses, which are covered in leathery skin instead of fur.

Unlike other tree-dwelling mammals, koalas do not have thick or long tails to help them with balance. Koalas are equipped with strong arms and legs to help them maneuver through the trees. Their paws end in sharp claws that grip trunks and branches easily. Koalas have pouches to hold their tiny joeys. Many people mistakenly refer to koalas as koala bears because of their cuddly, bearlike appearance, but they are not bears; they are more closely related to wombats.

Koala Joeys

Like most other marsupial babies, koala joeys are raised in their mothers’ pouches. Koala joeys are born after about thirty-five days of gestation, and they immediately crawl into their mothers’ pouches for milk and protection. They are blind, hairless, and about the size of a jelly bean. After seven to eight months of living in their mothers’ pouches, joeys are ready to peek out.
They transition from drinking milk to eating eucalyptus leaves by eating a diet of pap, which is a special form of their mothers’ droppings. The droppings contain microorganisms that the joeys will need to help them digest toxic eucalyptus leaves. When the joeys are too big for their pouches, they cling to their mothers’ stomachs and backs until they are ready to venture out on their own.

**Picky Eaters**

Koalas are among the pickiest eaters in the animal kingdom. They prefer to eat the leaves of eucalyptus trees. There are more than six hundred varieties of eucalyptus trees, but koalas usually will only eat from twenty to forty of this number and prefer only ten. Eucalyptus leaves are actually poisonous to most creatures, but koalas have developed strong digestive systems that help them deal with the toxins found in the leaves. They have a very long digestive tract that helps them extract all the nutrients possible out of the nutrient-poor leaves, while neutralizing the toxins.

This long digestive tract coupled with a slow metabolism helps koalas maintain a healthy lifestyle. Koalas need to eat about two and one half pounds of leaves to satisfy their nutritional needs. To conserve energy and get the most value out of their food, koalas sleep for most of the day. They sleep between eighteen and twenty-two hours a day, nestled in the forks of trees. Koalas are nocturnal and do most of their eating at night.

The leaves of eucalyptus trees not only provide koalas with their main meal, but also their water. Koalas usually avoid having to leave their trees to drink water by absorbing water from the leaves that they eat. In times of drought, when the water content of the leaves is reduced, koalas are sometimes forced to find another source of water.
Threats to Koalas

The biggest threat to koalas is the loss of habitat. Koalas need trees for food, a home, and protection. They lose their homes to deforestation by the logging industry and new housing developments. When they occur, bushfires can cause a localized extinction of koalas. Bushfires are common in summer months. Dieback, a situation that occurs when trees die from environmental factors, is also a problem because it reduces the number of trees available to koalas for nesting and food. Koalas need many trees as part of their home range.

Natural predators are no longer the biggest threat to koala numbers. Dogs can kill more than 1,000 koalas a year, and animals such as foxes, owls, and eagles attack young koalas, but these animals do not have the same impact as the loss of trees. Koalas are also susceptible to being hit by cars. As highways and roads continue to cut through their forests, more koalas will be hit by cars as they try to travel to other trees.

Koalas often carry disease, most notably a variety of chlamydial disease. This disease can cause blindness or make females infertile. However, the disease also helps keep populations of koalas healthy because only the strongest koalas survive.
Nature’s Fury!
Natural Disasters
and What We Can Learn from Them

By Tanya Jackson
Introduction

Nature really can be beautiful. Just think about the wonderful outdoors that this country has to offer, from the majestic Rocky Mountains in the west to the roaring surf of the Atlantic Ocean in the east, or from the vast Great Lakes in the north to the beautifully windswept canyons in the southwest. Other countries have beautiful natural places as well. You may have heard of the tall Himalayan Mountains or the arid beauty of the sweeping Sahara Desert. You may also have heard of the world's seven oceans. These are all beautiful places, full of richness and splendor.

But these places can also be very dangerous. Giant waves, called tsunami (soo-NAH-mee), can wipe out miles and miles of shoreline, leaving devastation in their paths. Rivers can flood past their banks, covering the surrounding landscape with water. Volcanoes can erupt, sending scalding hot lava cascading down around them. The earth can quake at any moment, leveling towns and cities. A lightning strike can ignite trees in a beautiful forest, causing a fire to roar through the trees and brush. Even beautiful snowcapped mountains can turn deadly, as sliding snow creates avalanches that smother everything in their paths.

In this book, we will explore six of nature’s most amazing and destructive events: erupting volcanoes, earthquakes, tsunami, hurricanes, floods, and tornadoes. These events often create massive damage and destruction. In this book, we will learn what causes these terrifying events. We will also learn about some of the most deadly natural disasters in history. Also, at the end of each section, we’ll find out what scientists learn from these events. We’ll also find out how scientists learn to predict when disasters might strike. Once scientists can predict these events, people can be more prepared for their awesome, destructive power. Cities, homes, and even lives might be spared.
Imagine you live in a town at the base of a tall, picturesque mountain. You love the mountain because it is beautiful and gives your town a lot of charm. It never occurs to you that it could hurt you until one day when the earth shakes and an explosion rocks the mountain! A tall column of ash and smoke rises from the top of the mountain. You see fire as lava bubbles out of the peak and what looks like a cloud of rock and smoke rushes down the mountain’s side. Your peaceful mountain is actually a volcano!

**Volcanoes** are mountains that erupt, releasing lava, ash, and gasses from below the earth’s surface. But what makes a volcano? Our planet is made up of several separate layers. The top two layers are called the lithosphere (LITH-uh-sfeer), which includes the crust and the asthenosphere (as-THEN-uh-sfeer), which is a partially molten layer of rock below the lithosphere. The lithosphere is made of big chunks of rock that fit together like puzzle pieces; these are called tectonic (tek-TA-nik) plates. There are seven large plates and dozens of smaller ones. These plates are constantly pushing, pulling, and sliding past one another. However, these movements happen so slowly that we cannot see or, usually, feel them.

Volcanoes usually form at convergent and divergent plate boundaries, or places where two plates meet. At a convergent boundary, one plate may slide under the other. As this happens, the rock melts into magma that is then forced up through the crust until it bubbles out or erupts onto the surface. Over time, these eruptions build up tall volcanic mountains. Plates pull apart from one another at divergent boundaries, allowing magma to rise to the surface. Some volcanoes form at places known as hot spots, where the crust is weak enough for magma to push its way through the rock.

Volcanic eruptions are some of the most spectacular and powerful events in nature, but they can also be dangerous. Let’s learn a little more about the science of volcanoes before reading about one of the most famous eruptions.
Types of Volcanoes and Lavas

There are three main types of volcanoes. The first type is called a scoria cone volcano. These are not only the smallest volcanoes, but the most common. Scoria cones erupt in bursts, sending columns of hot lava hundreds of feet into the air. Although these kinds of eruptions are loud and produce a lot of lava, they are not particularly dangerous if you keep your distance from them.

The next type is a shield volcano. When you look at photos of volcanoes in Hawaii, these are what you see. Shield volcanoes are wider than they are high, and when seen from above, they resemble a shield that warriors used for protection in the past. They also have the quietest eruptions. Lava may flow smoothly or create dazzling fire fountains as it escapes from these volcanoes. While lava from these volcanoes can be destructive to land and property, people are not often hurt and can watch eruptions from a safe distance.

The final type is a stratovolcano. These are often considered the most picturesque volcanoes because they make beautiful cone-shaped mountains, but they are also the most deadly. Eruptions from these volcanoes are violent, sending up clouds of ash miles into the sky. They often generate mudflows, called lahars, and pyroclastic flows, which are mixes of hot rock and gasses that flow like water down the mountainside. Stratovolcanoes have wiped out whole towns in one eruption.

All volcanoes produce lava, but they may produce different kinds of lavas depending on how much of a mineral called silica (SI-luh-kuh) is in the magma. When magma has high levels of silica in it, it does not flow easily and hardens quickly. Gasses cannot escape from this kind of lava and remain trapped inside. The pressure from these gasses causes explosive eruptions. This lava forms blocks that can turn into dangerous pyroclastic flows. These are similar to avalanches, but they are made of burning hot rock and gas. Big volcanic eruptions, such as that of Mount St. Helens in 1980, are caused by magma with a high silica content. But when magma does not have high levels of silica, it flows easily. Gasses can escape more easily, so eruptions are quieter and less violent. This is the kind of lava that you see in Hawaii’s volcanoes.

Volcano Fact!
Scientists generally think that the taller, more conical, and more symmetrical a stratovolcano is, the greater the chances are that it will erupt in the near future. This is because the volcano has had time to build itself up without an eruption to damage its looks.
Predicting and Measuring Eruptions

Unfortunately, volcanic eruptions are difficult to predict. Scientists have tools that help them to know when an eruption is likely, but they cannot tell you exactly when one will happen or how bad it will be. Scientists know eruptions are often preceded by earthquakes around the volcano. They can use seismographs (SIZE-mo-grafs), which measure ground motions, to detect these tremors. They also use satellites, global positioning systems (GPS), and lasers to measure the ground on and around volcanoes and to determine whether the earth under a volcano is getting warmer from rising magma.

Scientists have a scale, called the Volcanic Explosivity Index (VEI), to help them measure volcanic eruptions. Created in 1982, the VEI scale ranges from 0–8, with 0 representing nonexplosive eruptions and 8 indicating the most powerful eruptions. A number is assigned based on many factors such as the volume of ash or lava produced in the eruption and how long the eruption lasted. Each number represents an increase by a factor of 10; therefore, an eruption with a VEI rating of 6 is ten times greater than one with a VEI rating of 5. An eruption with a VEI rating of 7 is 100 times greater than one rated a 5 on the scale.

**Volcanologist:** A scientist who studies volcanoes and volcanic eruptions.
Mount St. Helens

Some volcanoes have long histories of destructive eruptions. The most famous eruption in the United States was the violent eruption of Mount St. Helens in Washington in 1980. While the mountain had been known to erupt, more than 100 years had passed without Mount St. Helens showing any signs of activity. Its height and symmetry made Mount St. Helens one of the most beautiful and scenic mountains in the Cascade Range, and it was a popular spot for hiking, fishing, camping, and other activities year-round.

In March of 1980, the mountain came alive with earthquakes and minor eruptions that released ash and steam from the crater. Geologists studying the mountain recorded tremors, indicating that magma was moving up through the mountain’s volcanic vents. Meanwhile, Mount St. Helens’s beautiful conical shape was changing. A huge tumorlike bulge was growing on the north side of the mountain where magma was pushing the rock outward. The state evacuated the area around the volcano, but some residents chose not to leave.

On the morning of May 18, 1980, all the readings from the volcano appeared the same as those from previous days, showing no increased sign of an eruption. About an hour and a half after geologist David Johnston reported his readings, an earthquake caused a landslide that then triggered the eruption of Mount St. Helens. At first, the mountain erupted sideways, out from the bulge that had formed; and then it blew straight up. More than 1,300 feet of the volcano’s top was blown away. A debris avalanche, pyroclastic flows, and mudflows killed fifty-seven people, including geologist Johnston, destroyed more than 200 homes, and clogged rivers with volcanic material.

After the eruption, the landscape around Mount St. Helens looked like an alien world. The lush green forests on the mountain were burned and knocked flat by the explosion. The ground was covered in dirty ash, and lakes and rivers were filled with muddy volcanic material. Some people wondered whether life could return to the volcano’s blast zone, but they did not have to wait long for an answer. Deeply buried plant seeds that had been protected from the blast by snow began growing by that summer. Today life slowly creeps back up the mountain while the volcano sleeps and builds energy for the next eruption.

Volcano Fact!

Volcano Fact Violent eruptions like Mount St. Helens’s are called plinian eruptions. A young man named Pliny the Younger was the first to record and describe a volcanic eruption when he witnessed the eruption of Mount Vesuvius in 79 CE.
Preventing Tragedy

Common sense tells us that the best way to stay safe from volcanic eruptions is to stay away from volcanoes. However, the long life spans of volcanoes and their cycles of activity and inactivity made it difficult to predict which mountains were dangerous in the past. Some volcanoes are hundreds of thousands of years old, and their most recent eruptions may have been before humans lived near them to witness eruptions.

Scientists classify volcanoes into three groups: active, dormant, or extinct. An active volcano is one that is currently erupting, is showing signs of unrest, or has erupted in recorded history. Even though Mount St. Helens is currently quiet, it is an active volcano because it has erupted recently. A dormant volcano is one that erupted in the past and will likely erupt again although it is currently quiet. Mauna Kea in Hawaii is a dormant volcano. Scientists know its last major eruption was more than 4,000 years ago, but they believe it could become active again because the geological record around Mauna Kea shows that it has long periods of quiet, followed by eruptions. An extinct volcano is one that is unlikely to erupt again.

Unfortunately, many cities and towns around the world are located near volcanoes. Throughout history, rich volcanic soil attracted farmers looking for fertile land for their crops. Volcanoes also attracted people because volcanoes produce precious minerals such as diamonds. Eventually, towns formed around volcanoes. Sometimes settlers were lucky and chose to live near extinct volcanoes. Other times they chose dormant ones, with tragic results.

How to Prepare for a Volcanic Eruption

If you live near a volcano, the following guidelines should prepare you in case the mountain erupts.

- Be prepared with an emergency kit that contains goggles and masks to wear over your face to protect your eyes and lungs from ash and dust. Avoid going outside if you are downwind from the ash cloud.
- Listen to state and local officials, and evacuate immediately when advised to do so.
- Know the evacuation routes that will take you away from the danger of the mountain.
- When the eruption is over, remind your parents or guardians to clear away the ash on roofs to prevent buildings from collapsing.
Part II:

Earthquakes

The sun rises on a beautiful day, and you can hear birds chirping. People in town begin their busy days going to work and school or doing errands. Suddenly, the ground starts to shake! It lurches back and forth and then rolls under your feet. Tall buildings sway, and some even collapse. Dishes fall out of the cabinets, and windows break. The ground opens up and swallows trees, cars, and anything else nearby. Just as suddenly as it started, the shaking stops. It has only been a minute, but it feels like much longer to you!

You just experienced an earthquake, but why? What caused the earth to move so violently? The answer lies underground. We already discussed how the earth’s crust is made up of plates that move and grind against one another at their boundaries. These actions cause earthquakes! In addition to convergent and divergent boundaries, a third type of plate boundary, called a transform boundary, exists. This is a place where the plates grind past one another. This action does not produce volcanoes, but it does cause a lot of earthquakes. Subduction zones, or places where one plate slides under another plate, also cause a lot of earthquakes.

As tectonic plates move, energy builds up where they meet. These meeting points are called faults. When too much energy builds up, it has to be released. That’s when an earthquake happens. A simple experiment can show you what happens during an earthquake. Put two pieces of paper next to each other on your desk. Where the pieces of paper meet is the fault. Lay a pencil across the fault. Now, push one piece of paper away from you while pulling the other toward you. What happened to the pencil? How did it move? Imagine if a road or a building were over that fault.

The word lithosphere comes from the Greek root lith, which means stone. The earth’s crust is part of the lithosphere and is made of stone and rock.
Measuring Earthquakes

Earthquakes happen every day all around the world, although we don’t feel the vast majority of them. Machines called seismographs have existed for a long time, but they can only tell you that an earthquake has occurred somewhere. Scientists wanted a way to tell how big an earthquake was. In 1935, a California scientist named Charles Richter created a system to measure earthquake magnitude, or size. Using seismographs, scientists measure the power of the seismic (SIZE-mik) waves, or waves of energy, caused by an earthquake. The closer a seismograph is to the earthquake’s epicenter (ep-IH-sen-ter), the stronger the waves are. The farther away a seismograph is from the epicenter, the weaker the waves are. Once scientists know how powerful an earthquake’s seismic waves are, they can use the Richter scale to determine the quake’s magnitude.

The Richter scale measures earthquakes on a scale of 1–10, with 1 being the weakest and 10 indicating the strongest. Earthquakes with a magnitude less than 3.4 are so small that they are not even recorded on seismographs. Each magnitude on the scale indicates that an earthquake is ten times stronger than the one below it. Does this sound familiar? The Volcanic Explosivity Index we learned about earlier is based on the Richter scale. Let’s learn about one of the most destructive earthquakes in history.

<table>
<thead>
<tr>
<th>Richter Scale Magnitude</th>
<th>Typical Effects of Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3.4</td>
<td>Detected only by seismographs</td>
</tr>
<tr>
<td>3.5–4.2</td>
<td>Just barely noticeable indoors</td>
</tr>
<tr>
<td>4.3–4.8</td>
<td>Noticed by most people; rattles windows</td>
</tr>
<tr>
<td>4.9–5.4</td>
<td>Noticed by everyone; may break dishes or make doors sway</td>
</tr>
<tr>
<td>5.5–6.1</td>
<td>Slight damage to buildings: plaster cracks, bricks fall</td>
</tr>
<tr>
<td>6.2–6.9</td>
<td>Much damage to buildings: chimneys collapse, houses shift on foundations</td>
</tr>
<tr>
<td>7.0–7.3</td>
<td>Serious damage to structures: bridges twist, walls fracture, buildings may collapse</td>
</tr>
<tr>
<td>7.4–7.9</td>
<td>Great damage to structures: most buildings collapse</td>
</tr>
<tr>
<td>8.0 and greater</td>
<td>Total damage; surface waves seen; objects thrown in air</td>
</tr>
</tbody>
</table>
The Great San Francisco Earthquake

The deadliest earthquake in the history of the United States happened in San Francisco on April 18, 1906. Like any other day, early morning workers headed to their factories while produce sellers brought their carts into the city. At precisely 5:12 a.m., the ground began shaking and rolling people out of their beds. Eyewitnesses reported seeing their furniture dance across the floor while household items fell out of cabinets and crashed to the floor. Plaster fell from the ceilings and walls, creating choking dust clouds within the shaking homes.

Buildings throughout San Francisco collapsed. Those that didn’t collapse had other structural damage, and most buildings lost their windows due to the intense shaking. The ground in some parts of the city liquified, sinking buildings and streets. Stone and brick from collapsing walls fell on people walking through the streets on their way to work. The earthquake shifted buildings off their foundations, twisted streetcar tracks, and downed telegraph wires.

Damage to San Francisco didn’t end when the earth stopped shaking. Fires broke out across the city because gas lines ruptured and caught fire. The fires helped bring down buildings that didn’t collapse during the quake. The fire department could only pump water on burning buildings near the bay because the water mains were broken as well. As the fire spread further into the city, people could only watch. The U.S. Army decided to use dynamite to destroy buildings, hoping the rubble would stop the fires from spreading. The fires didn’t stop, and residents panicked as they fled the city with their belongings.

Scientists believe the quake was a magnitude 7.9 and that the shaking lasted as long as a minute. The earthquake and fires caused by it destroyed most of the city, killing about 3,000 people. More than 200,000 people were left homeless by the quake. San Francisco has been hit by earthquakes since then, but this one remains the deadliest and most destructive.
Preventing Tragedy

Earthquake science has made huge advances in the last several decades. In cities that are near major fault lines and experience earthquakes, builders now understand better than they did in 1906 how the shaking can damage buildings. They have worked with scientists to design buildings that can withstand, to a great extent, the power of an earthquake. Now shorter buildings have stronger foundations, or bases, that will not crumble as easily in the event of a larger quake. Taller skyscrapers are actually built to sway a few feet during an earthquake. This swaying helps the buildings to absorb much of the seismic energy rather than collapse from the strain. They are not earthquake proof, but they are much stronger and safer than their predecessors.

Unfortunately, predicting earthquakes is just as difficult, if not more so, than predicting volcanic eruptions. In the last several decades, scientists have learned much more about how and why earthquakes happen. Scientists know, for example, that when stress is released on one part of a fault, it builds again on another part of that fault. They can use this information and knowledge of past earthquakes to guess where the next one might occur. But it is a very general guess, and there is currently no real way to warn people that an earthquake is coming. The best people can do is to be prepared and know what to do when they feel the ground start to shake.

How to Prepare for an Earthquake

Do you know what to do if the earth quakes? The following guidelines should help you to be ready if it does.

- If you are inside, find a safe place to sit, either under a sturdy piece of furniture, in a corner on the inside of the building, or in a doorway. If you can, grab a pillow to hold over your head, and wait for the shaking to stop.
- If you are outside, move away from tall buildings or other structures that could collapse.
- Once the earthquake is over, grab your emergency preparedness kit, and move outside as quickly and safely as possible. Aftershocks from the earthquake could collapse already-weakened buildings. Remember to wear shoes to protect your feet from broken glass or other materials.

Courtesy of Dr. Roger Hutchison
Imagine you are at the beach playing in the waves and enjoying the sun. Everything has seemed peaceful for the past several days. As you look out over the water, you notice that it seems to be receding, or going out away, from the beach. The water is much lower than it is at low tide. Suddenly that water rushes back toward land and shows no sign of stopping. You run for high ground to escape the wall of water coming toward you. From high up in your hotel, you watch the water flood the beach town you are visiting.

You have just witnessed a tsunami. Tsunami are very closely linked to earthquakes although they are not always caused by them. Tsunami are caused by sudden changes in the ocean floor. Earthquakes, landslides, volcanic eruptions, or meteorites can all cause tsunami. When a disturbance occurs, it displaces, or moves, the water, causing it to travel away from the disturbance in a series of waves. Think about what happens when you drop a rock in a pond. Those ripples are like mini tsunami.

These waves are not like the ones you play in at the beach! They travel through the oceans at speeds as fast as 500 miles per hour, slowing down as they approach land because the water becomes shallower. This slowdown causes the wave to grow in height, but instead of looking like a typical cresting wave, it looks like a wall of water. Tsunami waves have reached heights of 100 feet and can flood more than 1,000 feet inland.

Tsunami are one of the biggest hazards facing people who live near the coast or on islands, especially in the Pacific Ocean. This area is often affected by tsunami. In fact, the word tsunami is Japanese. It means harbor wave. The Japanese have documented unusual waves caused by tsunami since the 1500s. Let’s learn how tsunami are measured and monitored.
Tsunami Alerts

In the past, tsunamis have caused a great deal of destruction and death because people living on the coast were not aware that the waves were coming. A tsunami-generating event can happen off the coast of South America and affect places as far away as Australia, Hawaii, and Japan. In the past fifty years, people in the United States have made a lot of advances in their knowledge of tsunamis and how to detect them. The Pacific Tsunami Warning Center (PTWC) and West Coast and Alaska Tsunami Warning Center (WCATWC) are two U.S. tsunami-monitoring centers that often work with other regional centers to detect tsunamis and issue alerts.

Scientists watch for tsunamis when seismographs detect large earthquakes under the ocean. If the earthquake is large enough, an alert is issued for all the areas they believe could be affected by a tsunami. Next, scientists monitor a series of buoys located on the ocean floor. These buoys measure the weight of water over them and can tell when a tsunami wave as small as an inch in height passes by. These buoys send signals to the tsunami-monitoring centers, telling scientists the size of the waves and how fast they are moving. From this information, scientists and government officials can decide if an area should be evacuated or if there is little danger from the tsunami. Let’s take a look at a recent significant tsunami event.

Tsunami Fact!
The Pacific Tsunami Warning Center in Hawaii was the first tsunami-monitoring center built in the United States. It was created in 1949 in response to the devastation caused by a tsunami that hit Hilo, Hawaii, in 1946.
Indian Ocean Tsunami, 2004

On December 26, 2004, people on the island of Sumatra in Indonesia were awakened by a massive magnitude-9.3 earthquake that struck off the coast of the country. Despite the size of the earthquake, it seemed that little was damaged by the shaking. It was the day after Christmas, so many tourists and residents of the island were enjoying their vacations at the time. People went to the beaches to enjoy the warm sand and waves of the Indian Ocean as usual.

Several hours after the earthquake occurred, many people reported seeing a very unusual sight: the ocean receded from the beach. Curious tourists and beachgoers flocked to the beach, marveling at the exposed sea floor. Many people were unaware that a tsunami was rushing toward the beach, with a wall of water as high as 100 feet in some areas. Some people realized the danger and warned others to run to higher ground before the wave hit. Thousands of others were not as lucky.

The initial wave hit, smashing into people and buildings along the beach, flooding far inland, and sweeping away anything in its path. Many people tried to outrun the rushing water by climbing hotel balconies and trees to safety. Some tourists were in their hotels and filmed the rushing wave as it hit and flowed by their buildings. When the water receded, some believed it was safe to return to the beach and figure out what happened. Unfortunately, more tsunami waves arrived after the first.

Hours after hitting Indonesia, the tsunami waves traveled across the Indian Ocean and hit India, Sri Lanka, and the east coast of Africa. The tsunami killed as many as 230,000 people in eleven countries throughout the Indian Ocean region and caused damage as far away as Australia. The tsunami destroyed coastal cities and villages, permanently submerged small islands, and affected thousands of people. The waves often separated families and orphaned children. The flood of salt water destroyed crops, upset fisheries, and ruined fresh drinking water in many areas.
Preventing Tragedy

Unlike countries in the Pacific Ocean, countries in the Indian Ocean had no tsunami-warning system in place in 2004. Although seismographs recorded the earthquake, no one had any way of knowing that the earthquake had created a tsunami until the waves struck. Since the tsunami of 2004, scientists have installed buoys and other equipment to detect these dangerous waves and warn people in affected areas.

However, an alert system can only do so much. Depending on where an earthquake happens, people could have from a few minutes to several hours to prepare for the tsunami. The best solution is for people to be educated about tsunami and about how to escape the rushing waves.

How to Prepare for a Tsunami

If you live in an area where a tsunami may occur, the following guidelines should help you protect yourself and your family.

- Before a tsunami: Have an emergency plan that shows you how to escape to higher ground.
- When a tsunami alert has been issued: Turn on the radio, and listen for directions from government officials about evacuating and heading for higher ground.
- Do not head toward the ocean to see the tsunami. If you see the wave, it may be too late for you to escape.
- If you are at the beach and feel an earthquake or a tsunami warning is in effect, leave for higher ground immediately.
- Do not return to your home until officials say it is safe. Tsunami are usually trains of waves that follow one another. More than thirty minutes may elapse between waves.

Tsunami Sign

If you are at the beach and you see the water recede far beyond normal low-tide levels, this could be a sign of an approaching tsunami. Leave the area immediately!
You live along the coast and have been enjoying the unusually high waves washing up on the beach for the past couple of days. The waves are perfect for bodyboarding! Out in the distance, you see a large wall of clouds over the ocean, but the sky above you is clear. Over the next twenty-four hours, the ocean becomes rougher, and the wind starts to blow so hard that objects are thrown through the air. It is pouring rain, and the surf is now flooding the beach and coming closer to the homes and hotels lining the shore. It is not safe to go outside anymore.

If you experience these conditions, you might be in the middle of a tropical cyclone, or hurricane. Hurricanes are massive storms that form in the southern Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and eastern Pacific Ocean. These are much bigger than the thunderstorms you might see in the summer! They may be several hundred miles across and grow in power as they move across warm ocean waters. A hurricane spins in a counterclockwise direction around a central eye, with winds blowing continuously at speeds of at least 74 mph. Hurricanes also push against the sea, creating storm surges that can destroy homes and flood cities.

Hurricanes are one of the biggest annual threats to coastal cities, especially those on the East Coast of the United States. Islands in the Caribbean and the United States are hit by at least one hurricane each year. Let’s learn a little more about how these storms form.

**Did you know?**
A tropical cyclone is only called a hurricane in the Atlantic and eastern Pacific Oceans. In the western Pacific Ocean, this type of storm is called a typhoon. In the Indian Ocean, it is called a cyclone. These are all the same kind of storm; they just have different names depending on their locations.

**Hurricane Fact!**
The word *hurricane* comes from the Carib Indian god of evil, who was named Hurican. The Carib Indians got his name from the Mayan god Hurakan, who produced strong storms and floods.
Birth of a Hurricane

How does a hurricane form? The storm needs warm moist air from the ocean to fuel it. Most hurricanes in the Atlantic begin off the southern coast of Africa as clusters of clouds and thunderstorms called tropical disturbances. These thunderstorms release heat and lower the air pressure in the area of the disturbance; the warm air rises, and cool air rushes in underneath it, causing the wind speed to increase. The wind is then affected by the Coriolis effect, which causes the storm to rotate. As the storm rotates, it gathers up more moisture, creates more clouds and heat, and steadily begins to grow.

As it increases in power and intensity, a tropical disturbance becomes a tropical depression. If it continues to grow, it becomes a tropical storm. A hurricane is finally born when wind speeds exceed 74 miles per hour. Now the structure of a hurricane takes shape and forms the eye, which is the center of the storm. You might think this would be the most violent part of a hurricane, but if you flew into the eye of a hurricane, you would experience calm winds and clear skies.

Hurricanes are categorized on the Saffir-Simpson scale of 1–5 based on their wind speeds, with a category-1 storm being the weakest and a category-5 storm being the strongest. A hurricane may grow stronger, then weaker, and then stronger again during its life cycle. When a hurricane hits land, it weakens because it no longer has warm ocean air to fuel it.

Hurricanes have a long history of devastating coastal areas, but they have really only been documented and studied for the past 100 years. Let’s read about one of the most destructive storms since 1900.
Hurricane Katrina, 2005

The National Weather Service and National Hurricane Center had their eyes on a tropical disturbance that formed near the Bahamas on August 23, 2005. The storm eventually became Hurricane Katrina. They followed its path as it crossed the Bahamas and made landfall in Florida before it headed back into the Gulf of Mexico and gathered strength again. Meteorologists predicted that Katrina would affect New Orleans, Louisiana, and recommended that the government evacuate the city.

New Orleans lies on Louisiana’s coast in the Mississippi River delta. The city actually sits ten feet below sea level and relies on canals, levees, and pumps to keep water from the Gulf of Mexico, the Mississippi River, and nearby Lake Pontchartrain from flooding the city. With a combination of heavy rains and a storm surge, scientists everywhere had long foreseen that New Orleans would be in bad shape if it were ever hit by a strong hurricane. Officials called for a voluntary evacuation before Katrina’s landfall, and most of the city’s residents left for safety. However, about 100,000 people either could not or would not leave the city. Many gathered in shelters to wait out the storm.

Although Katrina weakened from a category-5 to a category-3 hurricane before making landfall on August 29, 2005, it caused $81.2 billion in damages, making it one of the most expensive disasters in U.S. history. It also killed more than 1,800 people in Louisiana and Mississippi, making it one of the deadliest. Katrina’s storm surges reached as high as twenty-eight feet in parts of Mississippi and up to twenty feet in Louisiana. The surge topped levees that had been built to protect the city from flooding, leaving eighty percent of the city covered in water. People were stranded on rooftops, waiting for rescuers with helicopters or boats. Across the coast of Louisiana and Mississippi, high winds and storm surges destroyed homes and sometimes leveled whole neighborhoods. Millions of people were displaced by the storm.
Years after the hurricane, New Orleans and other coastal cities are still rebuilding and trying to bounce back from the disaster. Workers from many charities and organizations traveled to New Orleans and other cities immediately after the storm to help families and businesses rebuild. It took weeks for the flood waters to drain from New Orleans, but many businesses opened their doors as soon as possible to accommodate relief workers and returning residents. Many residents were determined to return to normal life as well. Mardi Gras, the city’s biggest celebration, was held, as usual, just months after the hurricane’s destruction.

**Naming Hurricanes**

Meteorologists began naming hurricanes during World War II because it made it easier to communicate information about storms. A new list of names is used for each hurricane season. See if your name is on the list at http://www.nhc.noaa.gov/aboutnames.shtml.
How to Prepare for a Hurricane

If you live in an area that is likely to be affected by hurricanes, it is always important to be prepared for when a strong storm comes your way.

- Listen to local and national weather reports to learn the possible path and strength of a storm as it approaches the United States.
- Prepare your home by covering windows with storm shutters or plywood and moving any outdoor furniture or loose items inside.
- Have your emergency preparedness kit ready in case you are ordered to evacuate. Make sure that your parent or guardian prepares by filling the car with gas and that he or she knows the emergency evacuation routes.
- If you do not need to evacuate, stay indoors. Do not go outside during a hurricane or to see the eye of the storm. Stay inside until all warnings or alerts are lifted from your area.
- If your area was evacuated, do not return to your home until officials say it is safe to do so.

Unlike volcanoes, earthquakes, and tsunami, scientists today can predict where and when a hurricane will hit with a great deal of accuracy. In the past, they did not have the tools or knowledge to track hurricanes. Storms could only be followed by reports from ships or weather forecasters on islands that experienced the storms. Such reports relied on working telephone or telegraph lines, which were usually damaged by the storms. Most of the deadliest hurricanes occurred before technology existed to give good warnings to residents in affected areas.

Now meteorologists and forecasters working for the National Oceanic and Atmospheric Administration (NOAA) can constantly monitor storms from above using satellites and airplanes. Radar, buoys, and computers also help them monitor storms. Over the years, their forecasting models have gotten more accurate. In 1954, meteorologists could only give one day of advanced warning about the path of a storm. By 2002, they could give five days’ warning and predict very closely where the storm would make landfall. This information helps officials to plan evacuations and helps residents to know when to prepare their homes and themselves for a storm.

The number of people killed by hurricanes has gone down over the past century thanks to these advances in forecasting. However, many people still die because they do not want to leave their homes or do not believe a storm will be as strong as meteorologists say it will be. Bad predictions or weak storms in the past make people forget how dangerous hurricanes can be.
Part V: Floods

You have been stuck inside your house for the past week because of heavy rains. You are getting the remains of a hurricane that has traveled over your state. You live along a river, and from your window, you can see how deep and fast the water is running. Then you notice that the river is no longer in its banks. The water level is so high that the river has overflowed! Water is creeping closer and closer to the homes in your neighborhood. You are witnessing a flood.

Floods happen for many reasons, all of which have to do with there being too much water in a certain place. Heavy rains that last for a long time, heavy rains after a long drought, melting snows, tsunami, and hurricanes may all cause floods. Think about a river. It takes thousands of years for a river to create its path to the ocean. That river bed can hold and carry a maximum amount of water. When too much water enters the river, the river cannot handle it, and the water floods over the banks.

Floods pose a large danger to many people around the world. Most major civilizations began on the banks of rivers because they provided water for crops. Seasonal floods from rivers made farmland fertile. But the danger of a river overflowing its banks has always been a problem. Floods not only destroy buildings and other structures, but they can contaminate drinking water and lead to outbreaks of disease. Let’s look at the types of floods and a major flood disaster in history.

Flood Fact!
Ancient Egyptians relied on the Nile River’s seasonal floods for their crops. They knew when the river would overflow its banks each year.
Types of Floods

There are several types of floods. The most common type is a river flood. This happens when there is more water than a river can handle, making the river overflow its banks. A river flood happens slowly, so officials usually have enough time to warn residents and evacuate the affected area. These floods cause a lot of damage over a wide area.

The next type of flood is very dangerous. It is a flash flood, or a flood that happens very quickly due to very heavy rainfall. A flash flood also may be caused by rapidly melting snow or when an area experiences heavy rains after a long period of drought. Flash floods affect a much smaller area than river floods, but they are fast moving and dangerous. They move like a wall of water down a river, carrying away anything in their paths. Flash floods kill as many as 140 people each year.

Coastal floods happen when the sea flows inland much higher than usual. We have already read about two disasters that cause a lot of coastal flooding: tsunami and hurricanes. Sand dunes often provide a natural defense from high coastal waters, but dunes can collapse when high powerful waves wash over them and then recede. With nothing to block its path, ocean water can flow further inland than usual. Coastal floods caused by hurricane storm surges and tsunami can come quickly and kill people who have not fled the coast for higher ground.

Think you need to live near a river or large body of water to experience a flood? Not so! Urban floods happen in cities where drainage is poor and there is little place for water from heavy rains or melting snow to go. Concrete and cement do not absorb water as well as soil does, so the excess water collects and can flood a city. It may even flood the sewer systems. These floods can be a nuisance and cause some damage, but they are rarely dangerous.

Flood Fact!
Humans can cause floods too. Poorly constructed dams can break, allowing large amounts of water to flood the river below the dam, often destroying towns.
Mississippi Flood, 1927

The Mississippi River is the largest river in the United States. It winds its way through the Midwest from Minnesota to the Gulf of Mexico. The fertile soil along its banks attracted farmers as American settlers moved west. People immediately started working on ways to prevent floods from destroying farms and cities along the mighty river. New Orleans constructed its first levees in 1726, and by 1926, levees lined the Mississippi from Cairo, Illinois, to New Orleans. The U.S. Army Corps of Engineers declared that the river could not flood with the levees in place.

Heavy rains in the fall and winter of 1926 swelled the rivers feeding into the Mississippi, and many people feared that the Mississippi would flood the levees lining its banks. Their fears were realized on April 16, 1927, when the first levees failed, and the river flooded some towns with more than ten feet of water. Soon levees up and down the river failed, ruining farms and crops throughout the region. In some places, water collapsed sections of levees and flooded through the gaps with the force of Niagara Falls. Panicked citizens on each side of the river feared that people on the other side would sabotage their levees because if the levee on one side of the river failed, the opposite side would be spared from flooding. As the water rose, residents patrolled their levees to protect them.

Many towns and areas were evacuated, but racism often led to problems. Cotton planters in the Mississippi delta region did not want their black sharecroppers to evacuate and forced them to live in refugee camps atop the levees. There, sharecroppers faced poor living conditions in tents and poor diets because they did not receive the best rations, and they suffered from disease. Approximately 246 people were killed in the flood, which caused over $4.4 billion in damages in today’s dollars. It took months for the flood waters to recede and for work to begin digging entire towns out from under layers of mud. Despite levee repairs and newer technology, the Mississippi River still floods its banks. Major floods occurred in 1993 and 2008, though the number of people killed has gone down thanks to better warning systems.

Flood Fact!
You might hear the terms 100-year flood or 500-year flood used when a flood affects a river. Does this mean a major flood only happens once every 100 years? No! A major flood can happen during any year, but the chances for having a major flood are 1 in 100.
Preventing Tragedy

Meteorologists and other scientists can use high-tech equipment to measure the risk for floods much easier than before. Satellites can send information that is put into computer models, allowing scientists to see where flooding will most likely occur. Radar also lets meteorologists see exactly where rain is falling and how heavily. They can use this information to predict how the rainfall will affect people living near rivers.

The best way to protect people from flooding is not to allow people to build homes or cities on floodplains or other low-lying areas near water. Unfortunately, many cities and communities already exist in these areas. People have used levees, which are also called dikes, for hundreds of years to keep waters at bay. These structures form unnaturally high banks that require a lot of water to flood. Unfortunately, when levees fail, the resulting flood causes more damage than if the water flooded naturally. Communities may also work together to create temporary barriers with sandbags to help keep water out of their towns and homes. Keeping floodplains clear or creating wetland environments also helps to reduce the damage from floods because these areas provide a place for the water to drain so it can return to a natural level.

Flood Fact!
The Netherlands is famous for its levees and windmills. Levees line the coast, keeping the sea from reclaiming land, much of which is below sea level. Windmills positioned behind the levees pump water out of the ground and back into the sea.
Part VI: Tornadoes

You are at school, playing in a baseball game. It is a hot day, and earlier this morning, the TV weatherman was calling for severe storms in the late afternoon. As you play, you notice the sky growing greenish, and a chilly wind begins to blow. A flash of lightning and a clap of thunder end your baseball game, and everyone is told to rush inside the school building. Paper and trash blow around the school yard. Before you run in the door, you see a funnel-shaped cloud touch the ground!

You have just seen a tornado, one of nature’s fiercest storms. Tornadoes are the product of extremely strong thunderstorms. They are columns of violently rotating air that extend from the storm clouds to the ground. Although a tornado affects an area much smaller than a hurricane does, this type of storm packs a punch. A tornado can be more than a mile wide and can have winds of more than 250 mph! Anything in the path of a tornado is destroyed while objects just outside its path may be left untouched. Tornadoes can even form over water, creating waterspouts, which are also very dangerous.

Tornadoes can happen anywhere in the world, but the United States is well known for them. The area stretching from central Texas to Nebraska and then east through southern South Dakota, southern Minnesota, and Iowa is frequently called Tornado Alley because of the high number of tornadoes that occur there. Let’s find out how tornadoes form from severe storms.

Twister Fact!
Besides the United States, Argentina and Bangladesh also experience a large number of tornadoes born from severe storms.
Making a Twister

Tornadoes do not just appear out of thin air. They need severe thunderstorms and the right conditions to form. Thunderstorms form when warm moist air rises and then cools, forming towering clouds. An updraft is created by the warm air rising and the cool air sinking. In the case of very severe storms, an updraft causes swirling air to rise up into the clouds, forming a rotating column within the storm. This is called a mesocyclone, and it may be two to six miles wide. Once a mesocyclone forms, there is a fifty percent chance that a tornado will form as well.

Once a tornado forms, it follows the path of its thunderstorm and causes damage wherever it touches down. It breaks apart buildings and picks up debris, carrying objects and throwing them out from its vortex. Street signs and common household objects have been found miles from their original locations thanks to tornadoes. Tornadoes can seem to skip, meaning they touch down, then appear to jump, and then touch down again. Weaker storms may last for a few minutes while stronger ones can go on for hours and travel long distances on the ground.

Like many of the other natural disasters in this text, tornadoes are measured on a scale to help us understand how strong they are. For tornadoes, this is called the Fujita scale, created by meteorologist T. Theodore Fujita in 1971. The wind speeds on the scale are estimates based on the damage caused by a tornado. The scale was revised in 2007 and is now called the enhanced Fujita scale. It is similar to the original, but now the damage from a tornado is assessed differently to give more accurate descriptions of a tornado’s power.

Let’s take a look at a memorable tornado that caused mass destruction in the United States.

Make your own tornado!
You can make a tornado right in your own home.

You will need:
- A straight-sided 2-liter bottle, rinsed, with the label removed
- Glitter (optional)
- Food coloring (optional)

Directions:
1. Fill your bottle three-quarters full with water.
2. Add glitter, food coloring, or both to the water in the bottle.
3. Cap the bottle, and begin moving it in circles on a table until the water swirls around, creating a funnel. You have just created a tornado in the water!
Tristate Tornado, 1925

The afternoon of March 18, 1925, was unusually warm for early spring, and conditions were right for severe storms. What started out as a nice day turned sinister around 1 p.m. as the sky darkened and towering clouds rolled over the Midwest. A severe storm formed, and a tornado touched down near Ellington, Missouri, killing a farmer. The tornado skipped, or seemed to lift off the ground, then touched down again, killing four more people and destroying ninety percent of Annapolis, Missouri. The tornado moved extremely fast, at an average of 62 mph, and caught people by surprise.

An hour and a half after the tornado started, it reached Gorham, Illinois, where it destroyed every building in the town and killed thirty-seven residents. The next town hit fared much worse. Murphysboro, Illinois, suffered the greatest loss of life from the tornado when 243 people were killed by collapsing buildings and flying debris. Survivors recall seeing houses tumbling across the ground and feeling their own homes lift off their foundations. In West Frankfort, Illinois, coal miners evacuated their mines after the electricity failed. Upon emerging from the mines, they saw that their town had been destroyed and 127 people were dead, most of them the wives and children of the miners. The tornado reached Griffin, Indiana, by 4 p.m. and completely destroyed the town. A half hour later, the tornado fizzled out, but not before partially destroying more communities and claiming more lives.

The tornado's effects lasted long after the storm was gone. Some towns never fully recovered after their destruction. The town of Murphysboro had been an important railroad repair hub in the Midwest before the tornado destroyed train cars, railroad tracks, and buildings. After the storm, the repair business moved further south, taking jobs with it and depressing the local economy. Other towns experienced similar problems because so many homes and business were destroyed.

This tornado is number one on the list of the deadliest tornadoes in the United States. Meteorologists believe that most of the damage was caused by one tornado that measured a 5 on the enhanced Fujita scale. In certain locations, witnesses reported seeing two or three funnels, but for most of its three and a half hour journey, it was one tornado that was nearly one mile wide. The twister crossed Missouri, Illinois, and Indiana in a nearly straight 219-mile path, killing a total of 695 people. The tristate tornado holds the U.S. record for speed, distance traveled, duration, and deaths caused.
How to Prepare for a Tornado

If a tornado watch or warning ever goes into effect in your area, the following guidelines should help you to stay safe during the storm.

• If your home has a basement or storm cellar, you should take your emergency preparedness kit with you and go there until the watch or warning expires.

• If your home does not have a basement or storm cellar, move to the innermost room of the house such as a hallway or closet. Stay away from windows.

• If you are outside and far away from buildings, seek the lowest ground you can find, and hide there.

• If you are in a car, abandon it, and seek shelter in the nearest building or ditch.

How could a single tornado kill so many people? The answer is a lack of technology. Just as it was difficult to predict hurricanes and their paths, it was difficult to predict when a severe thunderstorm would form a tornado in the past. When a storm did produce a tornado, as in 1925, there was no way to tell the public. In addition to this, the National Weather Service (NWS) had banned the word *tornado* from broadcasts because it feared people would panic. There was little the weather service could do to predict which storms would produce tornadoes or where, so it chose not to mention the possibility at all.

By 1965, radar helped meteorologists predict when and where tornadoes would form, but there were still problems with communicating the danger to the public. People did not receive warnings or could not tell the difference between a forecast and a tornado alert. The NWS changed its methods and created two alert levels for the public: a tornado watch and a tornado warning. A tornado watch means weather conditions are right for a tornado to form. A tornado warning means that an actual tornado has been spotted on the ground.

Today people are alerted to severe weather in several ways. Radio reports and broadcast, cable, and satellite television all provide people with alerts about severe storms and the potential for tornadoes. Alerts are also posted on the Internet. Some towns across the Midwest, especially those in Tornado Alley, have loud sirens that will alert people within a wide area that they should seek cover. These measures have helped to drastically reduce the number of deaths from tornadoes.
Conclusion:
Respecting Nature’s Fury

Nature can be very beautiful, but it can also be dangerous, destructive, and deadly. This text explores only six ways that nature can be dangerous to humankind. There are also droughts, wildfires, blizzards, and other natural disasters that can strike with, or without, warning.

We need to respect nature’s tremendous power. All too often, we hear unfortunate stories of people who choose to disregard that power or ignore official warnings in the face of imminent disaster. Some people who hear warnings about incoming storms, potential earthquakes, or dangerous volcanic eruptions believe the danger is overstated, and they choose not to heed the warnings. Other people ask themselves, How bad can it really be? These people often pay the ultimate price for their choices and lack of respect for nature.

Science will continue to develop ways to protect people from nature’s fury by warning them when disaster may strike, but it is up to each person to understand just how powerful nature can be and how much damage it can do. If people respect nature and understand the potential hazards, everyone will have a better chance of leading a safer and happier life.

Learn more about natural disasters and how to prepare for them at www.fema.gov/kids/dizarea.htm!

Be prepared!
For most of the disasters mentioned in this text, an emergency preparedness kit would be very useful to have in a safe, easy-to-find place in your home. A basic kit should include:

- medical supplies (bandages, antiseptic ointment),
- enough bottled water to last each person in your family several days,
- nonperishable food items,
- blankets,
- changes of clothes,
- flashlights, and
- a NOAA weather radio and a regular radio, and extra batteries.
- And don’t forget about your pet(s) in the event of an emergency! Remember to include pet supplies (food, water, leashes, medical history, etc.) when you put your kit together.