

The Beautiful Mountain in the Sky



How to be Safe if a Lahar Flows Down the Mountain

Elementary Edition K-6



WASHINGTON MILITARY DEPARTMENT
Emergency Management Division



The trees were beginning to turn beautiful autumn colors, and the crisp air had replaced the warm days of summer. It was early in the morning. Natalie, Kaitlyn, Ellie and Courtney were watching their school bus approach the corner where they were gathered. Mr. Dave, the bus driver, was slowly stopping at each bus stop picking up kids.

One by one the children got on the bus. Andrew and Aaron were already on the bus. They were brothers who lived on a large farm out in the country. It took them a long time to get to school.



As the bus approached the school everyone was anxious to get off and play before school started. Sunshine Elementary School was located in a beautiful valley with Mount Rainier off in the distance. The mountain was beautiful standing high in the clear, blue autumn sky.

The bell rang. "Let's get going," Courtney shouted to Natalie and Kaitlyn, "we can't be late."



Once inside the classroom, their teacher, Miss Rosanne, told them, “Today is going to be a very special day. We are going to have a special guest this morning. Mr. Steve, the emergency management director for our county, is coming to talk to us about Mount Rainier. Before he comes, I think we should review the materials we studied about volcanoes last week.”

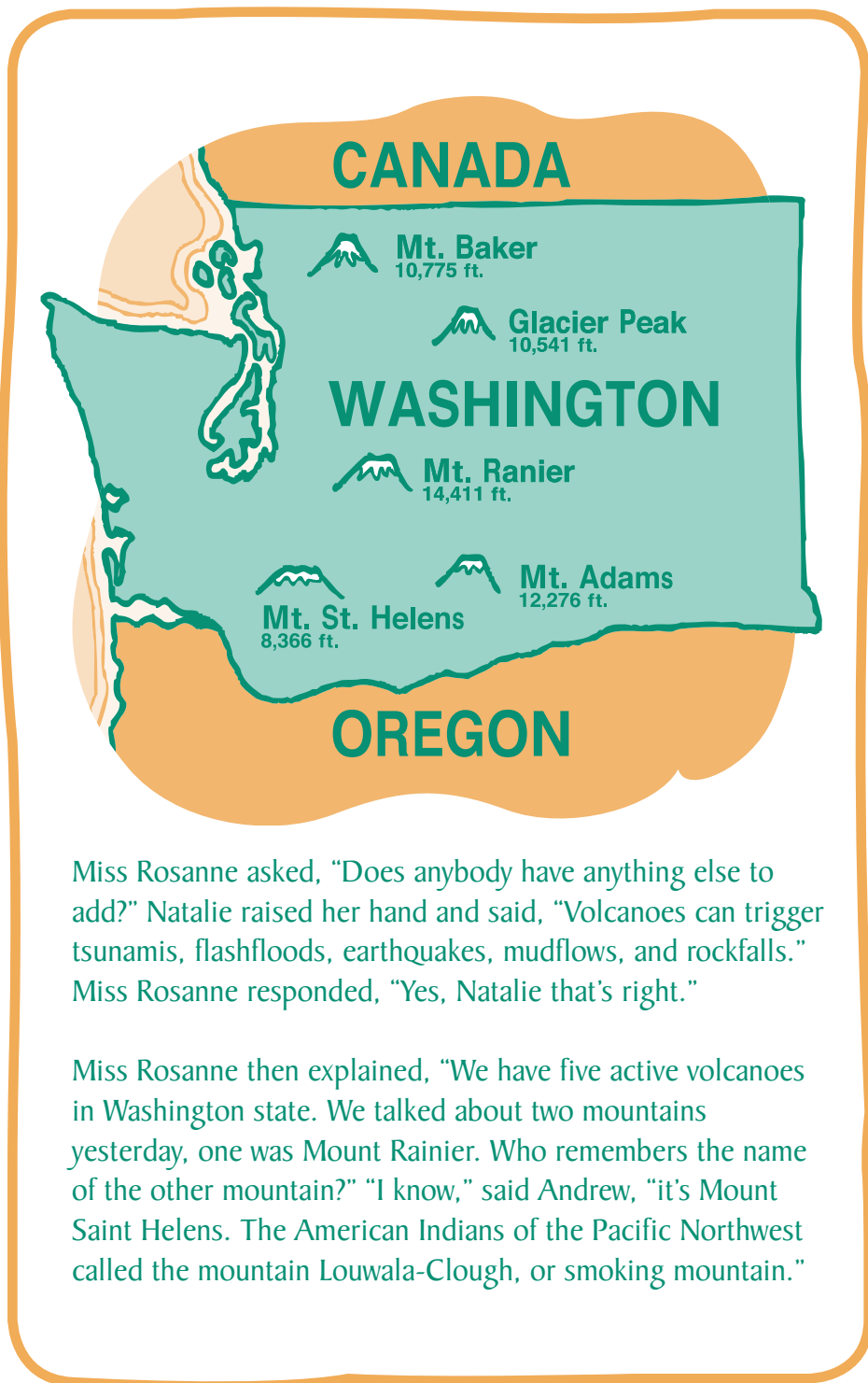
Andrew raised his hand, “I remember you telling us that there are more than 500 active volcanoes in the world.”
“That’s correct Andrew,” responded Miss Rosanne.



Miss Rosanne asked, "Ellie, can you tell us what a volcano is?" "Miss Rosanne, it's a mountain that opens downward to a pool of molten rock below the surface of the earth."



“Very good, Ellie. Now, Courtney, can you tell us what causes a volcanic eruption?” Courtney thought for a moment then answered, “Well, pressure builds up inside the volcano and an eruption occurs. Gas and rock shoot up through the opening and spill over or shoot lava into the sky. Volcanic eruptions have actually knocked down entire forests.”



Miss Rosanne asked, “Does anybody have anything else to add?” Natalie raised her hand and said, “Volcanoes can trigger tsunamis, flashfloods, earthquakes, mudflows, and rockfalls.” Miss Rosanne responded, “Yes, Natalie that’s right.”

Miss Rosanne then explained, “We have five active volcanoes in Washington state. We talked about two mountains yesterday, one was Mount Rainier. Who remembers the name of the other mountain?” “I know,” said Andrew, “it’s Mount Saint Helens. The American Indians of the Pacific Northwest called the mountain Louwala-Clough, or smoking mountain.”



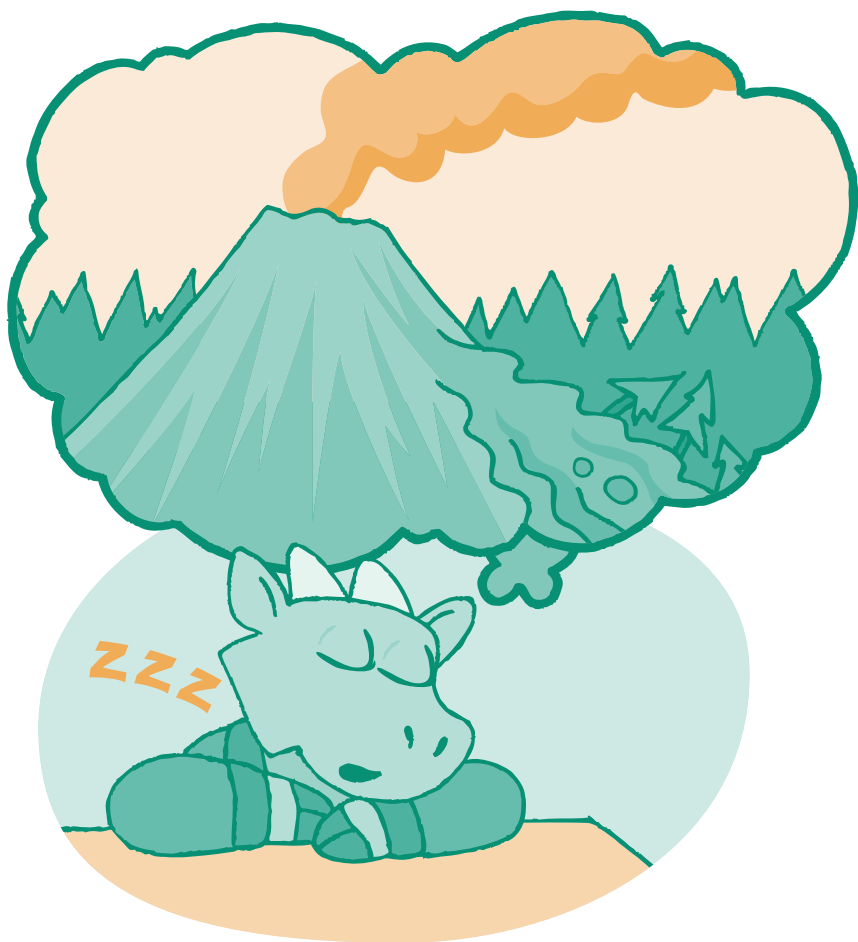
Courtney jumped up and said, “On May 18, 1980, Mount Saint Helens erupted. The blast was so loud it could be heard as far away as Montana, Idaho, Canada and California. The eruption of the mountain was a major disaster in Washington state – 58 people died, many were injured, and there was more than one billion dollars in property damage.” “Yes, that’s right,” said Miss Rosanne, “but today, things are returning to normal on Mount Saint Helens. The trees and flowers are growing and blooming, and the animals have returned.”



"Wow, that must have really been something." said Andrew, "My mom talks about the ash that fell on her car and in the yard. I wish I could have seen that." "Not me!" said Kaitlyn. "Dad said it was dark as night and I think that would have been scary."



The bell rang for recess and Miss Rosanne's class lined up at the door. They were anxious to go out and play in the cool, crisp autumn air. After recess, everyone came quietly back to their classroom. Miss Rosanne announced that their guest had arrived. "Boys and girls, please welcome Mr. Steve, the emergency management director from our county. Mr. Steve is going to talk to you about Mount Rainier and something called a lahar." Everyone listened very carefully. Well, almost everyone.



Andrew was so tired from playing outside in the cool air his head started to bob up and down. By the time Mr. Steve walked to the front of the room Andrew had fallen asleep at his desk. Natalie tried to wake him, but she couldn't. Andrew was fast asleep. He began to dream about Mount Saint Helens and what the eruption must have been like. He dreamed about the blast and with that he woke up and screamed. Everyone started laughing, and so did Andrew. He was wide awake now and ready to listen.



Mr. Steve greeted the class. "Good morning boys and girls. How many of you looked at the mountain this morning when you came to school?" Every hand in the class was raised. "Does anyone know how tall Mount Rainier is?" Kaitlyn raised her hand, "14,000 feet high," she said. "Well, that's almost right," said Mr. Steve. "Actually it's 14,411 feet high." "Wow," said Courtney, "my Uncle Dan climbed to the top of that mountain."



“Many people do,” said Mr. Steve, “and there are people on the mountain almost every day. The mountain is very beautiful, but it’s actually the most dangerous volcano in the Cascade Range. Today we are going to talk about something called a lahar.” “What is a lahar?” asked Andrew. Mr. Steve answered, “Well, a lahar is an Indonesian word for a rapidly flowing mixture of rock, debris and water that originates on the slopes of a volcano. Lahars are also called volcanic mudflows or debris flows.”

A lahar looks like a mass of wet concrete and mud that carries rock and debris. Large lahars can flow very, very fast — much too fast for people to outrun. That’s why we have warning systems to help us quickly get out of harms way if a lahar should occur. That’s also why we put up the volcano evacuation signs.”



Mr. Steve asked, "How many of you have noticed the volcano evacuation signs on the highway?" Aaron answered, "Our family saw the signs when they were first put up." "That's great," said Mr. Steve, "and today we are going to talk about how they can keep you and your family safe. The signs were put up to show you the way to high ground if a lahar flows off the mountain and a lahar warning is issued."



“If a lahar starts flowing down the mountain, sensors on the mountain alert the authorities that a flow is coming. The authorities immediately send a lahar warning over National Oceanic and Atmospheric Administration Weather Radios, which we call NOAA, and also over your home TVs and radios. Do any of you have a NOAA Weather Radio in your home?” Only one hand was raised. Zachary said his dad bought one a few weeks ago. “Well,” said Mr. Steve, “every home should have a NOAA Weather Radio.”



It's a different kind of radio, not like the one you normally listen to." "Is there music on the radio?" asked Bobby. "No music," said Mr. Steve, "only messages that will keep you safe and guide you to safety. For example, if there were a snow storm heading your way, you would get a message on the NOAA Weather Radio telling you to prepare for winter weather. If a severe thunderstorm were coming, the radio would alert you to take cover. There is a tone alert on the radio, like a siren, and when something is about to happen, the alert goes off followed by a message telling you what to do." "What if the radio isn't turned on?" asked Zachary. "The radio is always turned on," said Mr. Steve, "but you don't hear anything unless there is a watch or warning message issued. Schools have NOAA Weather Radios in their offices and they are monitored all day while you are in class."



Courtney asked, “What does the NOAA Weather Radio have to do with the volcano signs?” “They work together,” answered Mr. Steve. “When you get the lahar warning over the NOAA Weather Radio at home or in school you begin your evacuation and head to higher ground. The volcano warning signs will show you which way to go to get to high ground.” Courtney responded, “Okay, I get it.”

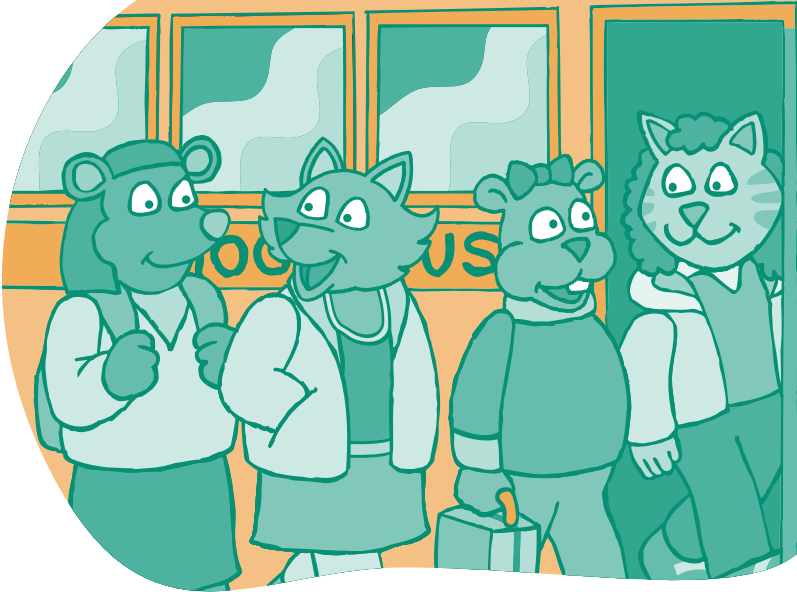


Mr. Steve then told the class that there is a new warning system in town that will also alert them if a lahar comes off the mountain. “What is that new warning system?” asked Andrew. “Well, it’s like a radio on a pole. Have you seen the large 40 foot pole near the high school?” No one raised their hand. “Well, when danger is approaching, a blue light mounted on top of the pole will begin flashing to alert you of the danger. There is a NOAA Weather Radio on the pole, much like the radio you should have at home. Both the radio on the pole and your NOAA radio at home will sound an alarm and give the alert message when danger is approaching. So, if a lahar is coming down the mountain you will be notified by the radio on the pole and the blue light will begin flashing.”



“The radio on the pole is louder than a fire engine and can be heard for one mile, said Mr. Steve. “I saw the pole the other day,” said Ellie, “but the light wasn’t flashing.” Mr. Steve responded, “No, the light won’t flash unless there is a warning for your community.”

It was time for Mr. Steve to leave. “I hope you will take this information home to your parents, and practice the proper thing to do if a lahar flows off Mount Rainier. Remember, listen to your NOAA Weather Radio, look for the evacuation signs, and listen for the radio on the pole.” The students all clapped and thanked Mr. Steve.



Weeks went by and the autumn leaves fell off the trees. Now it was cold outside and the weather man on TV said it could snow. Kaitlyn and Courtney were busy doing a reading project in their classroom, and Andrew and Ellie were working on a science project. “Maybe it will snow and we can stay home and build a snowman tomorrow,” said Ellie. “Boy, I sure hope so,” replied Andrew.

Suddenly the lahar warning sounded and the principal announced a lahar was flowing down the mountain and it was time for the school to evacuate immediately. The students knew exactly what to do. They had practiced the lahar drill many times. The students quickly went out to the buses for the trip to higher ground.



White Cloud Elementary School was located a few miles from Sunnyside School, but because they didn't have buses they began the brisk walk to higher ground.



The buses took Andrew's school to another school up on top of the hill. The kids from the school down the road all walked up the hill to safety.



Later that day the “all clear” was sounded and everyone returned to their own school safe and sound. As it turned out, the lahar was only a small flow off the mountain that didn’t reach the town. “Boy, we sure were lucky,” said Ellie. “Yes we were,” said Miss Rosanne. “However, if it had been a large lahar all the kids would have been safe because they knew what to do when danger approached.”

How about you? Would you be safe if a lahar or other disaster occurred in your community?

Use the following checklist to see if you and your family would be safe if a disaster occurred.

Safety Plan Checklist:

- Have a plan and drill the plan.
- Purchase a NOAA Weather Radio.
- Know the evacuation routes from your home and school, and how to get to high ground.
- Have a three-day supply of food, water, medical supplies, etc., in your disaster supply kit.
- Have an out-of-area phone contact.
- Decide where your family will reunite when a disaster happens if you can't go home.
- Conduct earthquake, lahar, and fire drills once every six months.
- Store enough food and water for your pet.
- Make arrangements for your pet if you have to evacuate after a disaster. Remember, pets can't go into shelters.

Your Disaster Supply Kit should include a 3-day supply of these items (at a minimum):

- Water, one gallon per person per day
- First aid kit
- Food (non-perishable) and eating utensils
- Battery-powered radio with extra batteries
- Flash light with extra batteries
- Medications
- Food and water for your pet
- Sanitation supplies (toilet paper, trash bags)
- Heavy gloves, sturdy shoes



Remember...

*Disasters can happen in
Washington state!*

Having a disaster plan
and knowing what to do
will help keep
you and your
family safe
when disaster
strikes.



This booklet will help children prepare for disasters.
Knowledge is power, and knowing what to expect
and what to do will increase their confidence
when disasters occur.

**Evacuation plans will vary
school district by school district.
For specific evacuation information
about your school, contact your
local school district administration.**

For more information about volcanoes and lahar safety,
please contact your local emergency management office.

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