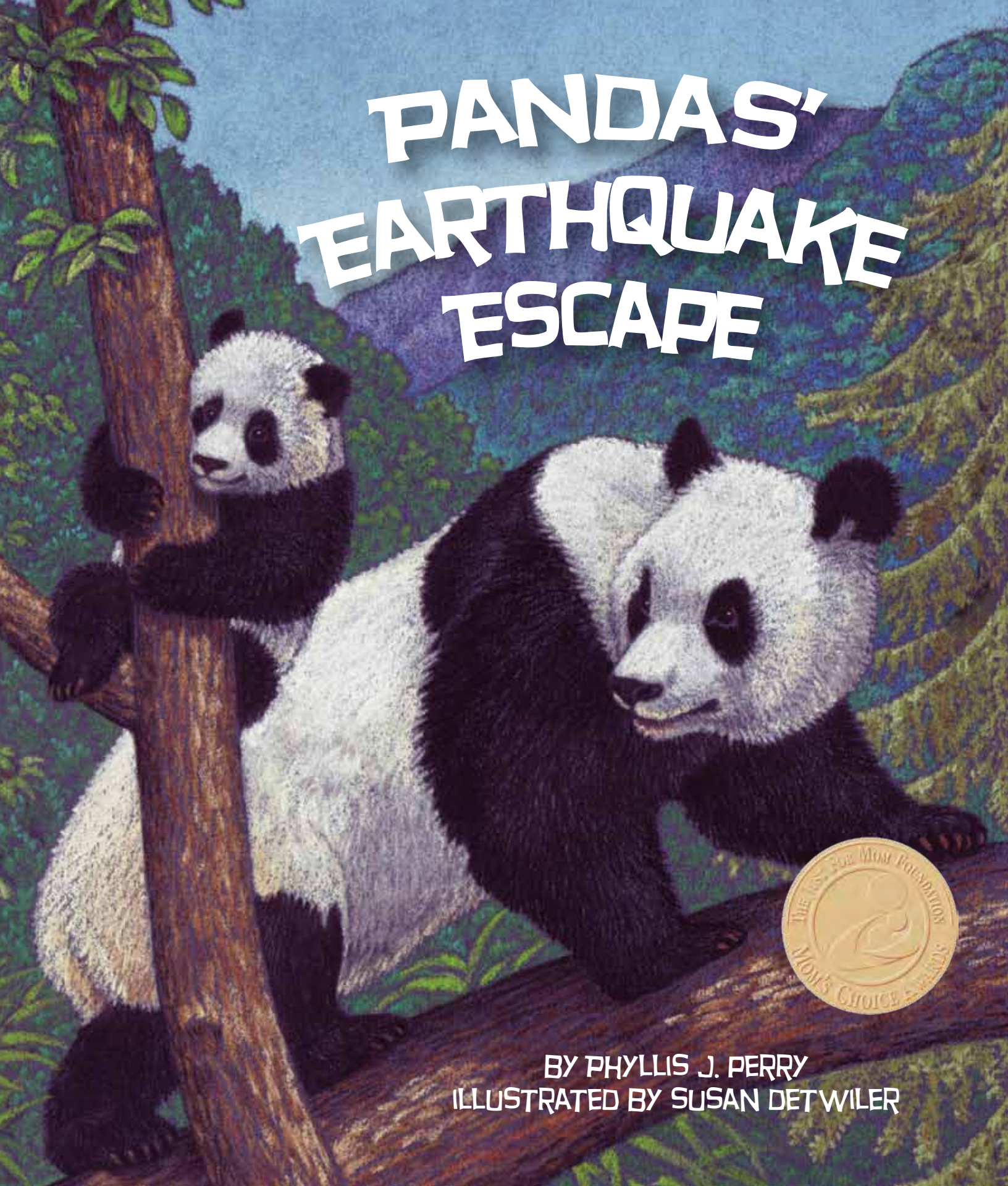

PANDAS'
EARTHQUAKE
ESCAPE
BY PHYLLIS J. PERRY
ILLUSTRATED BY SUSAN DETWILER

PANDAS' EARTHQUAKE ESCAPE

Pandas' Earthquake Escape is a fictional story based on a real-life event. In real life, XiXi, a giant panda escaped from the destroyed Wolong Panda Reserve when the 7.9 earthquake rocked Northern China on May 12, 2008. Author Phyllis Perry uses the fictional adventures of a mother panda, LiLing, and her one-year old cub, Tengfei, to teach children about earthquakes, animal survival, and to reinforce a mother's instinct to protect her child. After the quake, mother and cub run from the wreckage. Confused and afraid, they get lost! How will they survive outside their reserve? Will they find food? Will they find shelter? And will they safely endure the earthquake after-shocks?

Free online resources and support for the book at www.ArbordalePublishing.com include:

- For Creative Minds as seen in the book (in English & Spanish):
  - Endangered Giant Pandas
  - Life Cycle Sequencing Activity
  - Giant Panda Fun Facts
  - Shake, Rattle & Roll—Earthquakes
  - The Richter Scale and Magnitude Ranges
  - Where in the World? Earthquake Chart & Map
- Teaching Activities:
  - Reading Questions
  - Language Arts
  - Science
  - Math
  - Geography
  - Coloring Pages
- Interactive Quizzes: Reading Comprehension, For Creative Minds, and Math Word Problems
- English and Spanish Audiobooks
- Related Websites
- Aligned to State Standards (searchable database)
- Accelerated Reader and Reading Counts Quizzes
- Lexile and Fountas & Pinnell Reading Levels

eBooks with Auto-Flip, Auto-Read, and selectable English and Spanish text and audio available for purchase online.

Thanks to seismologist, Dr. Lucile Jones, Chief Scientist, Multi Hazards Project, U. S. Geological Survey and author of Earthquake ABC for Parents for verifying the accuracy of the earthquake information and to Elise Bernardoni, Education Specialist at Friends of the National Zoo, for verifying the giant panda information.

In addition to writing ***Pandas' Earthquake Escape*** for Arbordale, **Phyllis J. Perry** is the author of more than 70 books of poetry, fiction, and nonfiction for children and adults. Before becoming a full-time writer, Phyllis worked with the Boulder, Colorado, Valley Schools as a teacher, principal, curriculum specialist, and director of talented and gifted education. She is active in a number of writing-related organizations, including the Colorado Authors' League and the Society of Children's Book Writers and Illustrators. She lives in Boulder with her husband, David. They have two daughters and four grandchildren.

Susan Detwiler is the illustrator of several books for children including ***Pandas' Earthquake Escape***; ***Big Cat, Little Kitty;*** and the award-winning ***One Wolf Howls*** for Arbordale as well as *The First Teddy Bear* and *The Wonderful Bicycle Parade*. She is a member of the Society of Children's Book Writers & Illustrators. Books have always been a source of joy in her life, and as a child, she particularly loved books with beautiful illustrations. Susan lives in Maryland.

Phyllis Perry

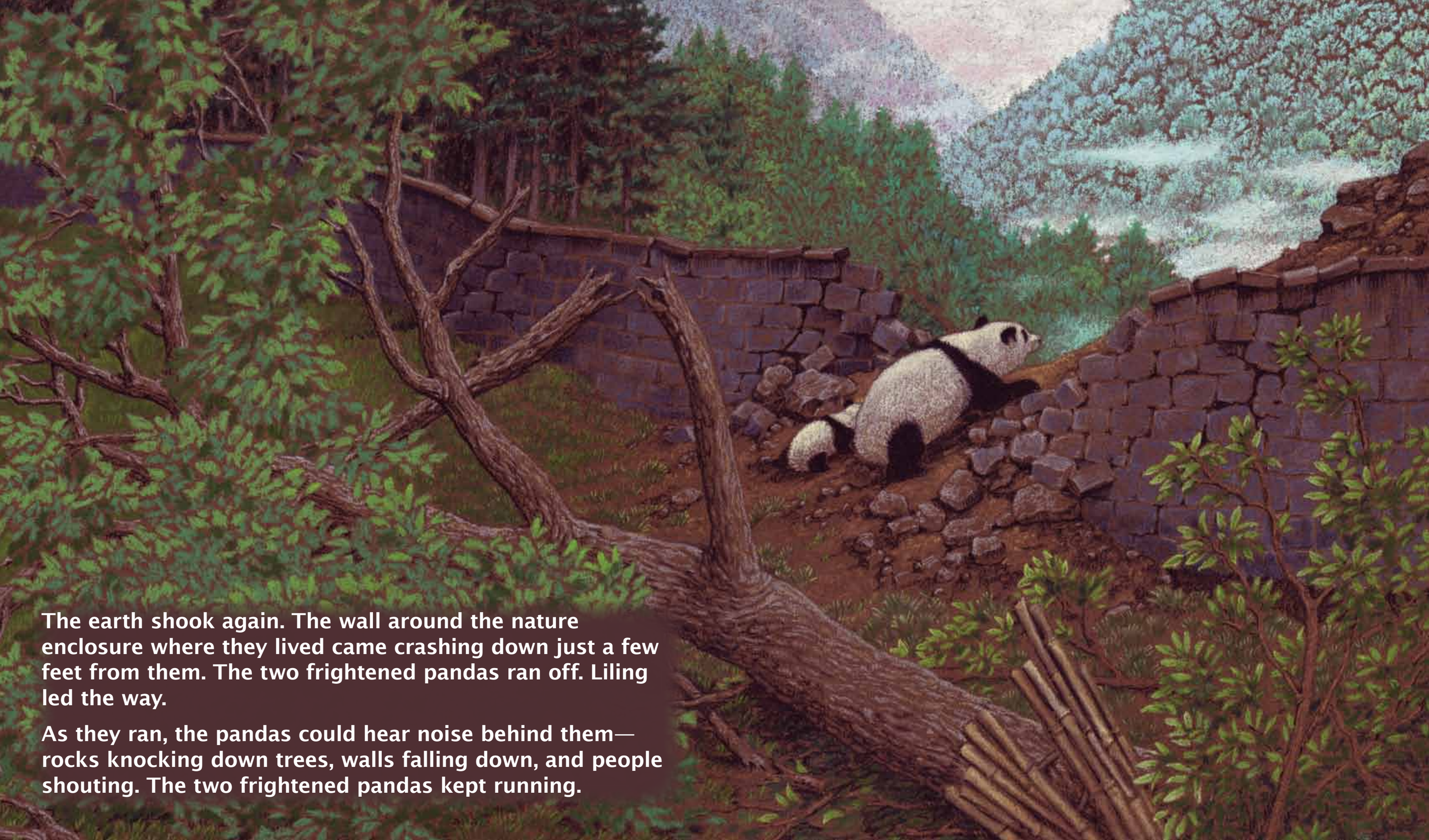
Susan Detwiler

PANDAS' EARTHQUAKE ESCAPE

BY PHYLLIS J. PERRY
ILLUSTRATED BY SUSAN DETWILER

Liling and Tengfei, two giant pandas, woke with a start! "Tengfei" means soaring high, and there was nothing this cub loved better than sleeping where he was, high in a tree. But today something strange was happening. The tree in which they were napping had begun to sway. The two puzzled pandas clung tightly. The gentle swinging motion gave way to a whipping back and forth as the ground trembled beneath them. An earthquake!

As the shaking continued, the tree limb broke and fell. Liling and Tengfei came tumbling down. Surprised and frightened, Liling, the big mother panda, immediately checked on her cub. They had both landed on the ground among the leaves and branches but were not hurt.



The earth shook again. The wall around the nature enclosure where they lived came crashing down just a few feet from them. The two frightened pandas ran off. Liling led the way.

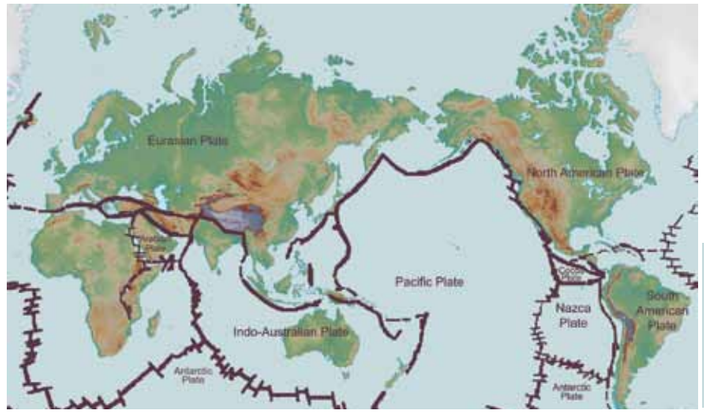
As they ran, the pandas could hear noise behind them—rocks knocking down trees, walls falling down, and people shouting. The two frightened pandas kept running.

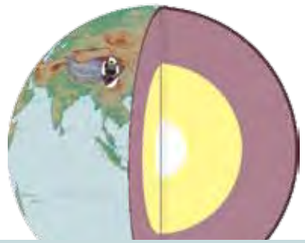
Liling ran down a winding, two-lane road. Tengfei had grown quickly, but he was still a young cub who always stayed close to his mother. He followed right behind her now. Sometimes, in his fright, he made a squealing noise much like a baby lamb.

Liling suddenly left the road and turned into the woods.

Shake, Rattle & Roll—Earthquakes

An earthquake can happen at any time—day or night. An earthquake might be too small to feel. But an earthquake can be big enough to shake things off shelves or even make buildings fall down—like the earthquake in this story.





Crust: 5-25 miles (8-40 km)
Mantle: about 1,600 miles (2,600 km)
Outer core: about 1,400 miles (2,250 km)
Inner core: about 800 miles (1,300 km)

The Earth's crust is made up of "puzzle-like pieces"— called plate tectonics.

The Earth's crust puzzle pieces (plate tectonics) are always trying to push past each other but are jammed together and cannot move most of the time. The friction between them keeps them from moving sideways until a lot of stress builds up, and they finally move suddenly. If you compare earthquakes to snapping fingers, the plates moving past each other are like the fingers moving past each. The sound you hear when snapping fingers is from the air, but the sound of the earthquake is the ground vibrating.

Aftershocks are smaller earthquakes or vibrations that happen after the main quake. The aftershocks can be big too! They might happen right away, over a few days, or even years after the main earthquake. The bigger or stronger the main earthquake, the more aftershocks you will probably have and the longer you might feel them.

There are several different ways to measure the strength of an earthquake, but the most common one is the Richter Scale. It is not like the scale you have in your bathroom, but a number—usually between one and ten. The higher the number on the Richter Scale, the bigger the earthquake is and the more damage it may cause if buildings are nearby.

The vibrations travel away from the place the puzzle pieces (plates) pushed past each other (epicenter) in waves—just like waves you might make if you drop a rock into water. The vibrations will be strongest in the middle and seem to be less and less, the farther away from the fault they are.

The Richter Scale and Magnitude Ranges

0.0 to 0.9	1.0 to 1.9	2.0 to 2.9	3.0 to 3.9	4.0 to 4.9	5.0 to 5.9	6.0 to 6.9	7.0 to 7.9	8.0 to 8.9	9.0 to 10
Micro			Minor	Light	Moderate	Strong	Major	Great	
Not really felt by anyone.			Felt by a few people.	Felt by most people; dishes or windows may break.	Felt by most people, may move some furniture, some building damage.	A little damage to a lot depending on the type of building.	Lots of damage depending on type of building. Buildings may move off foundations, bridges may come down, objects may fly through air. Gas pipes may break causing fires.		

Where in the World?

On May 12, 2008, a major earthquake rocked parts of China. Measuring 7.9 on the Richter scale, this earthquake killed over 87,000 people and destroyed homes and buildings—including the Wolong Panda Reserve. Over 60 giant pandas were living at the reserve when the quake hit. The pandas have been moved to other reserves until the Wolong buildings are repaired and reopened.

Find the locations of the listed earthquakes on the map on the next page.
For older children: what are the grids or the approximate latitudes & longitudes for each of the earthquakes?

	Location	Date	Magnitude
1	Chile	May 22, 1960	9.5
2	Prince William Sound, AK USA	March 28, 1964	9.2
3	Sumatra-Andaman Islands	December 26, 2004	9.1
4	Kamchatka	November 4, 1952	9.0
5	Valparaiso, Chile	August 17, 1906	8.2
6	New Madrid Region, MO USA (series)	Dec. 11, 1811 to Feb. 7, 1812	7.2 to 8.0 estimated
7	Kanto (Kwanto), Japan	September 1, 1923	7.9
8	Michoacan, Mexico	September 19, 1985	8.0
9	Shensi, China	January 23, 1556	8.0 estimated
10	Eastern Sichuan, China	May 12, 2008	7.9
11	Chimbote, Peru	May 31, 1970	7.9
12	San Francisco, CA USA	April 18, 1906	7.8
13	Pakistan	October 8, 2005	7.6
14	Guatemala	February 4, 1976	7.5
15	Tangshan, China	July 27, 1976	7.5
16	Hebgen Lake, MT USA	August 18, 1959	7.3
17	Charleston, SC USA	September 1, 1886	7.3 estimated
18	Loma Prieta, CA USA	October 17, 1989	6.9
19	Nisqually, WA USA	February 28, 2001	6.8
20	Northridge, CA USA	January 17, 1994	6.7
21	Haiti	January 12, 2010	7.0
22	Offshore Bio Bio, Chile	February 27, 2010	8.8
23	Coastal Honshu, Japan	March 11, 2011	9.0

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

A B C D E F G H I J

Arctic Ocean
Greenland Sea
Barents Sea
Kara Sea
Laptev Sea
East Siberian Sea
Beaufort Sea
Chukchi Sea
Bering Sea
Sea of Okhotsk
Pacific Ocean
Norwegian Sea
Baffin Bay
Hudson Bay
Labrador Sea
North Atlantic Ocean
South Atlantic Ocean
Indian Ocean
South China Sea
Coral Sea
Tasman Sea
Caribbean Sea
Gulf of Mexico
Gulf of Alaska

Russia
Canada
United States
China
Indonesia
Australia
Greenland

Eurasian Plate
North American Plate
Pacific Plate
African Plate
Arabian Plate
Indo-Australian Plate
Antarctic Plate
Cocos Plate
Nazca Plate
South American Plate
Antarctic Plate

2 4 15 23 19 16 12 18 20 6 17 13 9 10 7 3 8 14 21 11 22 5 1

International Boundaries
Major Rivers
Lakes
0 750 1,500 Miles
0 750 1,500 KM

look for the panda in China

Plate border
Earthquake

To Annie Nagda, a friend and fellow writer, who visited the Wolong Panda Reserve and first sparked my interest in the pandas, and to Casey Miller and Yan Kung for helpful advice—PJP

To the victims, both human and animal, of the 2008 Sichuan earthquake—SD

Thanks to seismologist, Dr. Lucile Jones, Chief Scientist, Multi Hazards Project, U. S. Geological Survey and author of *Earthquake ABC for Parents* for verifying the accuracy of the earthquake information and to Elise Bernardoni, Education Specialist at Friends of the National Zoo, for verifying the giant panda information.

Publisher's Cataloging-In-Publication Data

Perry, Phyllis Jean.
Pandas' earthquake escape / by Phyllis J. Perry ; illustrated by Susan Detwiler.
p. : chiefly col. ill., maps ; cm.

Summary: A fictional story based on a real-life event, Pandas' earthquake escape describes the adventures of a mother panda, LiLing, and her one-year old cub, Tengfei, as they escape a panda reserve following an earthquake. Can be used to teach children about earthquakes, animal survival, and a mother's instinct to protect her child. Includes "For Creative Minds" section.
Interest age level: 004-008.
Interest grade level: P-3.
Lexile Level: 580, Lexile Code: AD
Also available in auto-flip, auto-read, 3D-page-curling, and selectable English and Spanish text and audio eBooks
ISBN: 978-1-607180-715 (hardcover)
ISBN: 978-1-607180-821 (pbk.)

1. Pandas--Juvenile fiction. 2. Earthquakes--Juvenile fiction. 3. Survival after earthquakes--Juvenile fiction. 4. Pandas--Fiction. 5. Earthquakes--Fiction. 6. Survival--Fiction. I. Detwiler, Susan. II. Title.

PZ10.3.P47 Pa 2010
[Fic] 2009937788

Arbordale Publishing
formerly Sylvan Dell Publishing
Mt. Pleasant, SC 29464
www.ArbordalePublishing.com

If you enjoy this book,
look for other Arbordale books that may also be of interest:

Includes 4 pages of learning activities.
Look for more free activities online at
www.ArbordalePublishing.com