

Cao Chong Weighs an Elephant

by Songju Ma Daemicke and Christina Wald **AGE LEVEL 5–8 years**

About the Story

In ancient China, the emperor gave young Chong's father the gift of an enormous elephant, an animal no one in his city had seen before. People wondered how much the elephant weighed. How could they measure its weight? No one knew. But then Chong whispered a clever solution to his father. It involved a boat, measurement scales, and some rocks. The method worked and Chong was applauded for his intelligence and ingenuity.

Chong couldn't resist running directly up to the elephant to stroke its head. The playful elephant gently caressed him back with its long trunk, causing Chong to squeal with laughter. "What a wonderful nose it has!" Chong said excitedly. "It works like an arm and a hand!"



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Words to Learn

MATH WORDS

weight, mass, balance, enormous, dimensions, combined

OTHER WORDS

ancient, Prime Minister, Wu Kingdom, ambassador, applauded, spectators, jade, jin (a unit of weight), stumps, advisor, honorable, determine, brainstorm, ingenious

About the Math

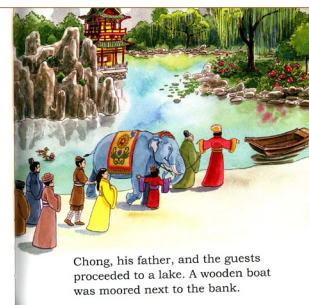
From reading the story of how Chong weighed the elephant, your child can learn:

- Sometimes, the most direct approach to solving a problem (using a balance scale to weigh the elephant) doesn't work.
- Solving a problem often requires creativity and non-conventional thinking.
- Chong's method involved three steps: determining how much the elephant's weight made the boat sink in the water, putting enough rocks in the boat (without the elephant in it) to sink the boat to the same level, and weighing the rocks.
- Weighing the rocks was easy. The cleverness was in using the rocks as a substitute for the elephant to determine the animal's weight.

Chong ran back and whispered his idea directly into his father's ear. Cao Cao's eyes brightened. "Yes! I think that will work!"



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Chong, his father, and the guests proceeded to a lake. A wooden boat was moored next to the bank.

Math Talk During Reading

DISCUSS CHONG'S METHOD OF WEIGHING THE ELEPHANT

How did Chong figure out how the elephant's weight affected the boat? (He made a line showing how far the boat sank.)

Why did Chong put rocks in the boat? (To make the boat sink to the same level as when the elephant was in it.)

THINK ABOUT OTHER APPROACHES

Suppose you don't have rocks. What could you use instead? (Cans of macaroni or other things!)

TALK ABOUT CHONG'S THINKING

What did Chong do before he added up the numbers? (He thought about the problem and developed an indirect method that allowed him to calculate. Calculation came last.)

Try to come up with some of your own questions and comments, too!

Activity After Reading

USE CHONG'S METHOD TO WEIGH SOMETHING AT HOME

Let's weigh this orange. First, we'll put it in this plastic container and then we'll see how much the container sinks in water. After removing the orange from the container, we'll put pennies in the container. Finally, we'll weigh the pennies.

Mathical

BOOK PRIZE

The Mathical Book Prize recognizes math-inspiring literature for kids ages 2-18. Prize-winning books are selected by a committee of teachers, librarians, mathematicians, and others. To get the Mathical List, plus reading guides, book reviews, and more, see mathicalbooks.org

PreK WINNERS:

- One Fox: A Counting Book Thriller** by Kate Read
- Crash! Boom! A Math Tale** by Robie H. Harris
- Baby Goes to Market** by Atinuke
- ONE Very Big Bear** by Alice Brière-Haquet
- 8: An Animal Alphabet** by Elisha Cooper
- Have You Seen My Dragon?** by Steve Light

GRADES K-2 WINNERS:

- Pigeon Math** by Asia Citro
- Nothing Stopped Sophie: The Story of Unshakable Mathematician Sophie Germain** by Cheryl Bardoe
- Sheep Won't Sleep: Counting by 2s, 5s, and 10s** by Judy Cox
- Absolutely One Thing: Featuring Charlie and Lola** by Lauren Child
- Max's Math** by Kate Bank
- One Big Pair of Underwear** by Laura Gehl

PreK HONOR TITLES:

- Animal Shapes** by Christopher Silas Neal
- Count the Monkeys** by Mac Barnett
- Count with Maisy, Cheep, Cheep, Cheep!** by Lucy Cousins
- Goodnight, Numbers** by Danica McKellar
- I Know Numbers** by Taro Gomi
- A Mousy Mess** by Laura Driscoll
- One Happy Tiger** by Catherine Rayner
- Over in a River: Flowing Out to the Sea** by Marianne Berkes
- Press Here** by Hervé Tullet
- Round** by Joyce Sidman
- 100 Bugs! A Counting Book** by Kate Narita

GRADES K-2 HONOR TITLES:

- The Boy Who Loved Math** by Deborah Heiligman
- Cao Chong Weighs an Elephant** by Songju Ma Daemicke

- Counting on Katherine: How Katherine Johnson Saved Apollo 13** by Helaine Becker
- Count on Me** by Miguel Tanco
- The Girl With a Mind for Math: The Story of Raye Montague** by Julia Finley Mosca
- How Many Jelly Beans? A Giant Book of Giant Numbers!** by Andrea Menotti
- Is 2 a Lot?: An Adventure with Numbers** by Annie Watson and Rebecca Evans
- Lifetime: The Amazing Numbers in Animal Lives** by Lola M. Schaefer
- Shapes, Reshape!** by Silvia Borando
- When Sophie Thinks She Can't** by Molly Bang
- Zero the Hero** by Joan Holub
- 3x4** by Ivan Brunetti

HALL OF FAME TITLES:

- Hippos Go Berserk!** by Sandra Boynton
- One Grain of Rice: A Mathematical Folktale** by Demi
- The Very Hungry Caterpillar** by Eric Carle

