



**AUTHOR/  
ILLUSTRATOR:**

Steve Jenkins

This book shows the actual sizes of animals and parts of animals. You can compare the size of your foot to the size of an African elephant's foot! Just how big is that crocodile smile? Will a pygmy shrew fit in your pocket?

**Ages:** 2 to 9 years

**ATOS Reading Level:**  
2.8

**Lexile:** 1080L

**ISBN:** 9780062110546

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## Actual Size

**How does the size of your eye compare to the eye of a giant squid? Bigger, smaller, about the same size?**

**Topics:** measurement, comparison, ratios, counting

**Activities To Do Together:**

*Actual Size* explores the concept of size (height, weight, and length) and provides many opportunities to compare which animals are larger, smaller, taller, heavier, wider, etc. Measuring and comparing are important concepts that help children problem solve and make decisions.

Before reading the book:

- Explain to your child that all of the animals in the story are shown at the size they are in real life.
- Take turns placing your hands on top of the gorilla's hand on the cover of the book. Together, talk about what you notice. Ask your child how their hand compares to your hand and the gorilla's hand.

While reading the book:

- Ask your child why only parts of some of the animals appear on the page.
- Look at the picture of the ostrich egg together. Encourage your child to compare it to the size of other eggs.
- Notice together which animals are similar in weight, height, or length.

When you have finished reading the book:

- Encourage your child to create a new page for the book that features their favorite animal or pet. Discuss together what measurement information should be included for the animal. What is the animal's height, weight, length, etc.?
- Explore how much different foods weight. At the grocery store weight an apple, a bell pepper, a watermelon. Which weighs most? Which weighs least? Which weigh about the same?
- Notice the weights on boxes and canned foods. Choose four different packaged foods and arrange them from lightest to heaviest.
- Encourage your child to make an "Actual Size" page about themselves. Talk about the measurements and fun facts they would like to share.

**Conversations During Daily Routines with Infants and Toddlers:**

1. Family Time - Compare shoe sizes of the people you live with. Line up shoes according to size.
2. Snack Time - Talk about the foods you eat. What foods are about the size of an apple?
3. Play Time - Make comparisons with stuffed animals. Are your eyes larger or smaller than the eyes of the stuffed animal?
4. Pet Time - Compare the size of a pet or familiar animal with other types of animals. What's bigger than a cat, an elephant, a mouse? What's smaller? What weighs more? What weighs less?

**Questions for Mathematical Thinking:**

1. Are you taller or shorter than a gorilla?
2. If you had a choice, would you like to be the shortest or tallest? Tell me why.
3. What other really big or really small animals are not mentioned in this book?
4. Why do you think some of the pictures don't show the whole animal?
5. How would you compare the sizes of the Alaskan brown bear, the giant Gippsland earthworm, the ostrich, and the Goliath frog? What unit or units of measurement would you use?

**Early Math Project Resources:**

Visit [Actual Size Activities](#) or [earlymathca.org/actual-size](http://earlymathca.org/actual-size)

Follow this [link](#) or visit [earlymathca.org/external-resources](http://earlymathca.org/external-resources) for additional online resources.

**Vocabulary**

**Math words found in the story:** across, as much as, feet, inches, length, long, ounce, pounds, up to, weight

**Related math words:** comparison, heavier/heaviest, lighter/lightest, measurement, narrower/narrowest, smaller/smallest, taller/tallest, wider/widest

**Words to build reading comprehension:**

attentive, extended, ivory, mingle, sensitive, vocal

**Related Books:** *Twelve Snails to One Lizard* by Susan Hightower; *Prehistoric Actual Size* by Steve Jenkins; *Biggest, Strongest, Fastest* by Steve Jenkins

Click this link to the [World Catalog](#) or enter <https://bit.ly/3BG144S> to find *Actual Size* in the public library.



**Math Connections:**

Everyday activities and play provide numerous opportunities to measure and make comparisons. These are important skills that help children make decisions and problems solve. *Actual Size* shows a variety of animals in real size, providing an engaging way to discuss which animals are taller, smaller, heavier, larger, etc. Explore with your child how different animals or objects can be bigger in their own way. For example, the ostrich in the story is taller than the crocodile, but the crocodile is longer than the ostrich. Each can be accurately described as bigger.

Encourage your child to compare their own size with the animals in the story. Ask, “Are you taller or shorter than an Alaskan brown bear? Is a Goliath birdeater tarantula wider than your hand? How much larger is your pinky finger than a dwarf goby?” Which animals are taller, wider, lighter, narrower, bigger, or smaller than you?

Explore informal measurement with your child. Informal measurement is not based on a standard unit of measure like inches, feet, or pounds. The length of a toy car, the length of your child’s shoe, or the width of their hand are a few things that your child could use as an informal measuring tool. When using informal measuring tools, place the tool in the same orientation each time. For example, end to end or side to side. Your child might measure a table by figuring out how many times a toy car will fit across a table. Ask your child how many of their hands will fit across the alligator’s mouth. Encourage your child to find out how many blocks it takes to cover the gorilla’s hand. A Goliath beetle and a standard deck of playing cards each weigh about 3.5 ounces. What other objects weigh about the same? What objects weigh more? What objects weigh less?

Explore formal measurement, with a ruler, a yardstick, a scale, or other standard measuring device. Talk about feet, inches, pounds, ounces, etc. If your child does not know how to use a ruler, show them how to measure the fingers on the gorilla’s hand. Ask your child how the gorilla’s fingers compare to the size of their own fingers. Talk about what unit or units of measurement could be used when measuring different animals. Would you measure a giraffe in feet or inches or perhaps both? Would you weigh an Atlas moth in ounces or pounds?



## DISCOVERING THE MATH: BOOK GUIDE

Ask your child to sort the animals in the book into different groups – animals that weigh less than they do, animals that weigh more than they do, and animals that weigh about the same. Encourage your child to weigh or measure different objects. Ask your child what types of size comparisons they would like to make.

Count and compare what you see in the story's pictures: the number of legs on a tarantula versus the number of legs on a Goliath beetle. Which animal in the book has the most legs? Which animal appears to have the most teeth? How do the shark and crocodile teeth compare to human teeth?

Talk about the symmetry of the Atlas moth and Goliath beetle. Look for other examples symmetry in nature. Together, find examples of symmetry in insects and other animals. Use the camera on a cell phone to capture examples of symmetry on a nature walk. Consider making a collage with your pictures.

With your child, find out how many legs an insect has. How many legs do two insects have together? three insects? What attributes do all insects have in common? Find out the difference between a bug and an insect. If you see a creature how could you figure out if it is an insect, a bug, or a spider? If you found an animal with eight legs would it be an insect? Ask your child to explain why or why not.

Discover how some of the animals in this book were named. Did their size, the foods they eat, or the places where they live influence what they were named? Look it up! What would you name the animals in book? Why did you choose those names?



## DISCOVERING THE MATH: BOOK GUIDE

Age Level	Related <a href="#">Infant Toddler Foundations</a> , <a href="#">Preschool Foundations</a> and <a href="#">CA State Standards</a>
Infant/ Toddler	<b>Spatial Relationships</b> The developing understanding of how things move and fit in space. <b>Number Sense</b> The developing understanding of number and quantity.
Preschool/ TK	<b>Measurement 1.0</b> Children expand their understanding of comparing, ordering, and measuring objects. <b>Number Sense 1.0</b> Children begin to understand number and quantities in their everyday environment <b>2.1</b> Compare by counting or matching, two groups of objects and communicate, “more,” “same as,” or “fewer” (or “less”).
Kindergarten	<b>Measurement and Data K.MD 1</b> Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. <b>K.MD 2</b> Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.
Grade 1	<b>Number and Operations in Base Ten 1.NBT.3</b> Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of the comparisons with the symbols $>$ , $=$ , and $<$ . <b>Measurement and Data 1.MD.1</b> Order three objects by length; compare the lengths of the two objects indirectly by using a third object.
Grade 2	<b>Numbers and Operations in Base Ten 2.NBT.4</b> Compare two three-digit numbers based on meanings of the hundreds, tens, and one digits, using $>$ , $=$ , and $<$ symbols to record the results of comparisons. <b>Measurement and Data 2.MD.1</b> Measure the length of an object by selecting and using appropriate tools.
Grade 3	<b>Measurement and Data 3.MD.4</b> Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.