How Much Bigger?

ACTUAL SIZE
Steve Jenkins

Task

Just the Right Numbers
How much taller is a Gorilla than a Pygmy Mouse Lemur?
How much longer is a Giant Anteater's tongue than a human tongue?
How much longer is a Saltwater Crocodile than a Goliath Frog?

Standards and Learning Targets

Standard 4.MD.1 Know relative sizes of measurement units within each system of units (standard and metric), including kilometers, meters, and centimeters; liters and milliliters; kilograms and grams; pounds and ounces; hours, minutes, and seconds. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that one foot is 12 times as long as one inch. Express the length of a four-foot snake as 48 inches. Know that one meter is 100 times as long as one centimeter. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36) . . .

Standard 5.MD.1 Convert among different-sized standard measurement units within a given measurement system (for example, convert 5 cm to 0.05 m); use these conversions in solving multi-step, real-world problems.

Lesson Outline

Anticipated Strategies: Before you begin this lesson, be sure to anticipate the strategies your students might use or the misconceptions they might have about conversions using the Picture Book Problem Monitoring Chart. To convert from feet to inches, some students might know to multiply, while others might draw diagrams or create a chart.

Launch: Read aloud Actual Size by Steve Jenkins. Ask students to think about what they notice or wonder that could be answered using math as you read the book/explore each picture.

Gather student ideas. Pose the following problems and let students choose "just the right numbers" and select which problem they'd like to explore:

- A Giant Anteater has a 2 foot long tongue. The average human tongue is 3 inches long. How much longer is a Giant Anteater's tongue than a human tongue?
- The Saltwater Crocodile is 23 feet long. The Goliath Frog is 36 inches long with its legs extended. How much longer is a Saltwater Crocodile than a Goliath Frog?
- A Gorilla is 5 ½ feet tall. A Pygmy Mouse Lemur is 2 ½ inches tall. How much taller is a Gorilla than a Pygmy?

Show your work and be ready to explain your thinking. If students finish their problem early, they can work on a second one.

Actual Size Recording Sheet

Explore: Give students time to explore their conversions. Some students might already know to multiply while others might need to use rulers to create diagrams/models. As students work, ask questions about their process and reasoning using your monitoring chart. Select at least one student to share their solution strategy for each problem during the summary part of the lesson.

Summarize: As students share their solution strategies, ask questions about how they knew they needed to convert feet to inches and then subtract. Once solutions are shared, create an anchor chart for conversions, beginning with inches to feet/feet to inches.

Extension Ideas:
- Find the difference in weight between two animals
- Give students time to come up with their own comparisons

Thank you for using one of our Picture Book Tasks! We would love to know more about your students' strategies when solving the problem, ideas you had for improving the task, and other math problems you and your students noticed or wondered about after reading the book.

Please complete our Picture Book Task Survey so that we can learn more about your experience teaching, how students solve problems, and improve our Picture Book Task Bank.