

# CURIOSITY AT HOME

## PERSONAL MEASURING SYSTEMS

*Objects have been measured in various ways throughout history. The earliest measuring devices were parts of the human body and this is a technique still used today. For instance, horses are measured in “hands.” One hand equals four inches or ten centimeters. Surveyors and farmers use strides (the length of one step) to measure the ground. One stride is about a yard. Try this activity to measure things using your own measuring unit.*

### MATERIALS

- String
- Scissors
- Marker
- Science notebook or paper
- Something to write with

### PROCEDURE

- Choose a part of your body to measure things around you. Some examples are the length of your foot, circumference of your head, length of your arm from elbow to wrist, length of your leg from knee to ankle, or any other section of the body you choose. Give your unit of measure a name.
- Cut a piece of string that is exactly the length of the body part you chose.
- Try measuring items near you using your unit of measure.
- Share your results with your friends and family. For a particular item, which unit took the most to measure? Were there any units that were larger than the item being measured?
- Divide your string into halves, fourths, eighths and then mark those points on your string with a marker. Measure various items and record the lengths as fractions of units, such as “the book is 4 ½ wrists long”. Write your measurements down in your science notebook.

### EXPLORE MORE

Try using what you know to make an estimate (an educated guess) about how large something is using your units of measurement. Measure the object and see how close you were.

### DID YOU KNOW?

It's important to make sure we agree on what units to use when measuring something. In 1999, a robotic probe being sent to Mars had a miscommunication between two computer systems. One computer sent data in a unit based on pounds, and the computer receiving the files assumed the numbers to be in a unit based on kilograms. The trajectory was off, and the robot crashed. This mistake ended up costing NASA \$327.6 million!



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### 3–5 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- Invent a measurement system with multiple units for measuring objects of different sizes. For example, maybe your measurement system measures in hands and arms or in ears and heads.
- Try measuring a small object with fractions of a large unit, or a large object with many small units. Write down the measurements in your science notebook.
- In your science notebook, see if you can figure out how many of your small units makes up one large unit. For example, maybe one head is 4 ears long, or an arm is 7 hands long.
- Measure something in small units, then multiply it by that number to see how many large units it will measure out to. Then check your work by measuring in large units!



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