

# Only Half There?

## Math Concepts

- fractions
- ratio
- division
- proportion
- linear measure

## Materials

- TI-10, TI-15 Explorer™
- **Only Half There?** recording sheets
- linear measuring tools (rulers, tape measures, string, etc.)
- pencils or markers
- butcher paper
- scissors

## Overview

Students will use measuring tools and calculators to make half-sized drawings of themselves.

## Introduction

1. Read selected portions from *Gulliver's Travels* by A. Benduce, *The Littles* by J. Peterson, or *The Borrowers* by M. Norton. Discuss what the little people might look like.
2. Have students work in pairs. Have one partner lie down on a piece of butcher paper while the other traces around his or her partner's body. Then have the partners trade places.
3. When everyone has a body tracing, have students cut out the tracings and fold them in half from top to bottom. Then give each student another sheet of paper that is half the length of his or her body.
4. Challenge students to draw a half-sized version of themselves. Have students discuss what ideas need to be considered. Have them record their measurements in the table on their recording sheets.

### Examples:

What measurements need to be taken? How would those measurements be translated into the half-sized version?

5. Encourage students to use details in their drawings; for example, their facial features, clothing, etc.

## Collecting and Organizing Data

While students are working on drawing the half-sized versions of themselves, ask questions such as:

- What measurements are you taking? Why did you choose those?
- What measuring tools are you using? Why did you choose those?



How are you using the calculator to help you with this problem?

# Only Half There? *(continued)*

## Collecting and Organizing Data (continued)

- How do your actual measurements relate to the measurements in your half-sized picture?
- Are there any features that come out looking strange? Why do you think that is happening?

**Note:** Many students will try to draw their waist using the measurement of half of the circumference. This makes their waist in the picture appear disproportionately large. Using calipers or shadows projected on a sheet of paper can help solve this problem.



How could you use  $\boxed{\text{Int} \div}$  on the TI-15 Explorer™ or  $\boxed{\div}$  on the TI-10 to help you with this problem?

## Analyzing Data and Drawing Conclusions

After students have drawn their half-sized pictures, have them discuss their results as a whole group. Ask questions such as:

- What measuring tools did you use? Why did you choose them?
- What patterns, if any, do you see in your pairs of measurements in the table on the recording sheet?
- Why do you think those patterns are occurring?
- Did any parts of your body look distorted? If so, why do you think that happened?
- In a half-sized picture of yourself, is there only half of a full-sized picture? Support your response.

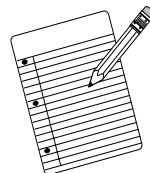


How can you use  $\boxed{\div}$  on the TI-15 Explorer™ to help you with this problem?

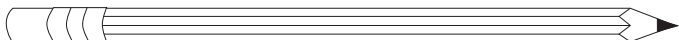
## Continuing the Investigation

Have students:

- Draw one-third-sized versions of themselves and discuss their strategies for solving the problem.
- Try to fit drawings of themselves on 5- by 8-inch index cards.



Name:



# Only Half There?

## Recording Sheet

### Collecting and Organizing Data

Body Part	Measurement	$\frac{1}{2}$ Measurement

### Analyzing Data and Drawing Conclusions

To make a half-sized drawing of myself, I:

Questions we thought of while we were doing this activity (write on the back of this page):