

## HOW TALL? Teaching Guidelines

**Subject:** Mathematics

**Topics:** Ratios

**Grades:** 4 - 8

**Concepts:**

- Ratio
- Proportion

**Knowledge and Skills:**

- Can solve a proportion for an unknown

**Materials** (for each team):

- ruler marked in inches (or centimeters)
- yardstick (or meter stick)
- 50 feet of string

**Procedure:**

This activity is best done with students working in teams of three.

Distribute the handout and discuss it. Bring two students up to the front of the room to model the procedure, and work through the solution of the proportion with the class. (Use the string to mark off the distance from one student to the other, and then the yardstick or meter stick to find the length of the string.)

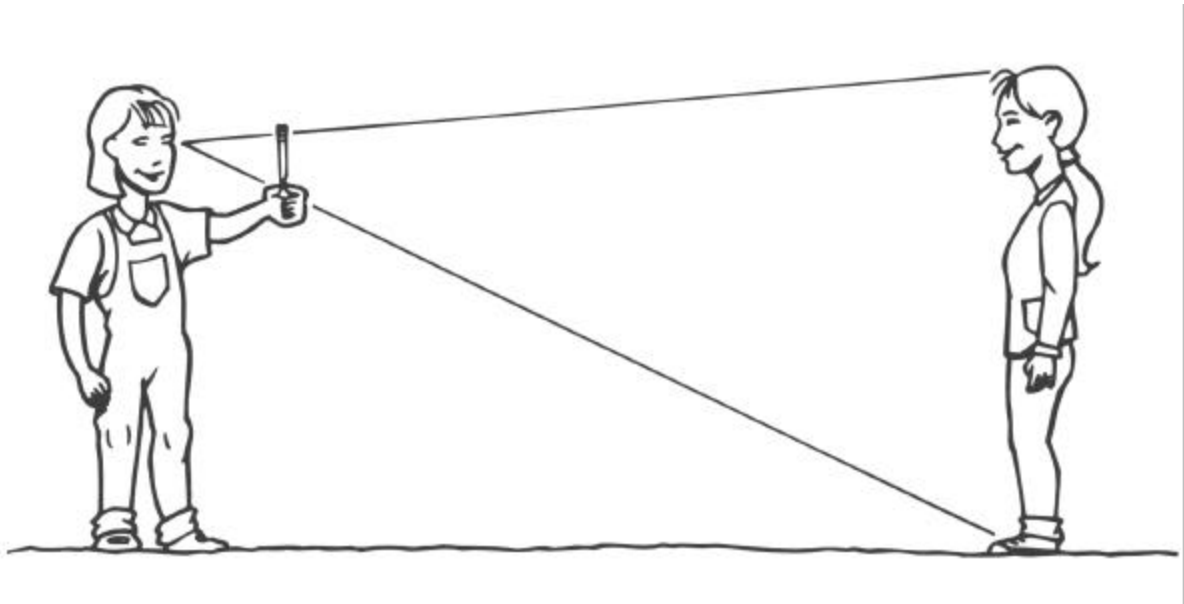
This activity provides a good opportunity to make sure that students understand the difference in meaning between the terms “ratio” and “proportion”.

Ask some of the students to describe how they could use the procedure to find the heights of their friends and the height of the door. Then have all teams do so, circulating as they work and helping as needed.

Once all students understand and can carry out the procedure in the classroom, take the students outside and have the teams apply the same procedure for finding the heights of trees or buildings.

## How Tall?

Victoria learned a new way to find out how tall her friend Jessica is. She stands several feet away from Jessica and holds a pencil up in front of her so that it looks like it is covering Jessica from head to toe.



Then she writes these two ratios:

$$\frac{\text{Height of pencil}}{\text{Distance from eye to pencil}} = \frac{\text{Height of Jessica}}{\text{Distance from eye to Jessica}}$$

Victoria measures her pencil and finds that it is 7 inches high. Another student measures the distance from her eye to the pencil and finds that it is 14 inches. Then Victoria measures the distance from where she was standing to where Jessica was standing, and it is 14 feet, 4 inches.

How tall is Jessica?

Find the height of one of your friends. Find the height of your classroom door. Can you find the height of a tree?