



How Many of Me Equals a Tree?

How tall is a tree? Is it taller than you? Most trees probably are. How many of you stacked on top of each other do you think it would take to be as tall as a tree? Two of you? Five of you? Or 100 of you? Let's find out.

Purpose

Learners will develop reasonable expectations about the height of trees compared to something familiar – their own height. The activity also strengthens math and science skills related to making measurements, transitioning between units of measure and basic math.

Time

About 30 minutes

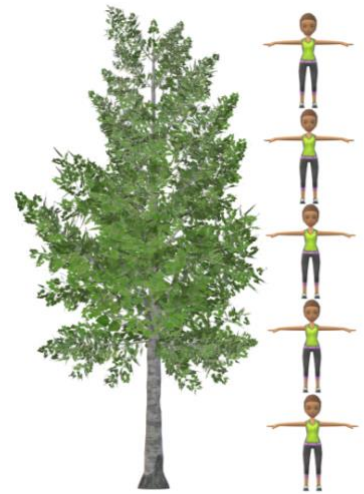
Materials Needed

- Tape measure
- [Clinometer](#) or smartphone
- Calculator (optional)
- Pencil
- Paper

What to Do

Part 1

First, you need to find out how tall you are. You will need a partner to help and a tape measure. When you are ready, do the following:



1. Stand up against a wall with your feet flat, heels touching the wall, and your back straight.
2. Have your partner hold a pencil flat on your head and mark the wall with the pencil.
3. Use your tape measure to find your height. Put the end of the tape measure against the ground and measure up to the mark. Write down the number and record the unit of measurement in inches or centimeters. Then, erase the mark.



Part 2

1. Next, you need to pick a tree that is on level ground. Stand in a spot where you can see the top and bottom of the tree.
2. Make a prediction about how many of you it would take to be as tall as the tree you have chosen.
3. Measure the height of the tree following one of these two methods:
 - a. **Use a clinometer, an instrument used to measure the angle of a slope.** The [Build a Clinometer](#) activity contains instructions for creating your own DIY clinometer and a worksheet for calculating tree height.
 - b. **Use the Trees tool in the GLOBE Observer app.** Download the app, sign in or register, then follow the prompts or training under the Trees tool. It will tell you exactly how to use your phone to measure your tree's height. Write the number down and the measurement unit (meters or feet).



Part 3

To determine how many of you equals a tree, you will need to divide the height of the tree by your height. It is important to use the same units for your height and the tree's height. Follow the appropriate instructions for your chosen units.

If you are using meters and centimeters...

Convert your height from centimeters to meters by dividing by 100.

$$\text{height in centimeters} \div 100 = \text{height in meters}$$

$$\text{Example: } 158 \text{ cm} \div 100 = 1.58 \text{ m}$$

Now divide the tree height by your height to find out how many of you equals a tree.

$$\text{tree height} \div \text{your height} = \text{how many of you equals a tree}$$

$$\text{Example: } 19.53 \text{ m} \div 1.58 \text{ m} = 12.36$$

If you are using feet and inches...

For measurements in inches, convert to feet by dividing by 12.

$$\text{height in inches} \div 12 = \text{height in feet}$$

Example: 62 in. \div 12 = 5.17 ft.

For measurements in feet and inches, you will need to convert the portion in inches by dividing by 12 and adding your result to the whole feet.

$$(\text{inches} \div 12) + \text{whole feet} = \text{height in feet}$$

Example: (2 in. \div 12) + 5 ft. = 5.17 ft.

Now divide the tree height by your height to find out how many of you equals a tree.

$$\text{tree height} \div \text{your height} = \text{how many of you equals a tree}$$

Example: 64.08 ft. \div 5.17 ft. = 12.39

Explanation

The examples above are for a person who measures 5 ft. 2 in. or about 158 cm and a tree that measures 64 ft. 1 in. or 19.53 m. It would take over 12 of that person to equal the height of the tree!

Questions for Review

1. How many of you did it take to equal a tree?
2. Was your prediction correct?
3. If your prediction was not close, why do you think that happened?

Acknowledgements

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