

Measure Me Tree

Suggested Location: Oak Knoll

At a Glance:

While investigating Oak Knoll, students understand vertical and horizontal measurement of large objects.

Grades: 3-5

Materials for Each Student:

- String
- Ruler
- Tape measure
- Paper
- Pencil
- Directions sheet
- Student page

Goal(s):

Working in pairs, students use measurements to determine the height and breadth of a large tree.

Objectives:

- Students will demonstrate measurement of the trunk, crown, and height using vertical and horizontal measurement.
- Students will compare results with other groups.
- Students will create a graph of their findings.
- Define horizontal, vertical, and circumference.

PA Academic Standards:

Number systems/Relationships: 2.1.3.J

Measurement: 2.3.5.A; 2.3.5.B; 2.3.5.C

Probability/Predictions: 2.7.3.A; 2.7.3.D

NATIONAL Standards for Mathematics

Standard 4: Understands and applies basic and advanced properties of the concepts of measurement

Standard 5: Understands and applies basic and advanced properties of the concepts of geometry

Standard 6: Understands and applies basic and advanced concepts of statistics and data analysis

Standard 7: Understands and applies basic and advanced concepts of probability



Background:

Longwood arborists take excellent care of the trees at Longwood Gardens. Understanding the size of trees is very important to their job. Have students work in pairs or small groups to measure tree trunk circumference, canopy breadth, and overall height.

Follow up in the Classroom

Students who focused on the same tree can compare measurements. Have students make bar graphs using the information gathered at Longwood Gardens. Have students locate the biggest tree and smallest tree of the same species.



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Directions:

Trunk:

- Measure from the ground to 4 feet high on the trunk.
- At that height, measure the trunk's circumference. (Hint: use a string around the trunk and measure the length of the string).
- Round to the nearest inch. Record the number and label as circumference.

Crown:

- Find a tree's five longest branches.
- Have students determine the longest branch and place a marker on the ground beneath the tip of the longest branch.
- Find a branch that is opposite it and mark its tip on the ground.
- Measure along the ground from the first marker to the second marker.
- Record the number and label as crown.

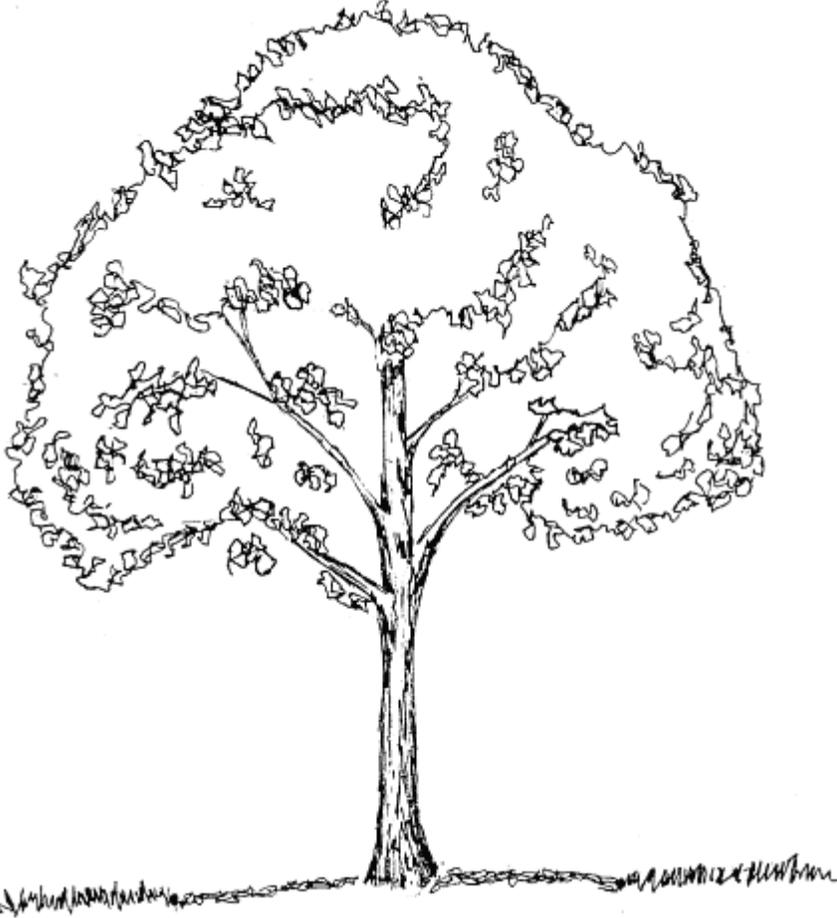
Height:

- Have your partner stand at the base of the tree.
- Back away from the tree, holding your ruler in front of you in a vertical position. Keep your arm straight. Stop when the tree and the ruler appear to be the same size. (Hint: close one eye to help you line it up).
- Turn your wrist so that the ruler looks level to the ground and is in a horizontal position. Keep your arm straight.
- Have your partner walk to the spot that you see as the top of the ruler. Be sure the base of the ruler is kept at the base of the tree.
- Measure how many feet he or she walked. That is the tree's height.
- Round to the nearest foot and label your answer as height.

Use the tree diagram on the next page to label and record your answers.



Label as many parts as you can.



Circumference: _____

Canopy/Crown: _____

Height: _____

