

Field Trip Program: Tree Math

At the North Carolina Arboretum



It's a math lesson- only in the woods! Students learn the basics of using forest tools as they head into the forest to measure trees and collect data. We'll learn the usefulness in using study plots to understand the composition of forests as we create scale diagrams and record our observations. A wrap-up and data analysis activity challenges students to use their current math curriculum to draw conclusions from information they collect themselves.

6th Grade Specific: Students will find the ratio of tree species composition in a study plot; calculate board feet per tree; determine species composition by percentage; rank order of numbers of species; and use variables to determine total area represented by a particular species.

7th Grade Specific: Students will calculate growth rate per tree and estimate tree age; determine total amount of carbon sequestered in pounds per year; determine impacts of forestry (sustainable or not) to the hydrosphere, lithosphere, biosphere, and atmosphere.

8th Grade Specific: Create scatter plots for association of the height and diameter of particular tree species; determine which species has the lowest relative frequency.

Principles:

- Forest tools can be used to obtain data to be used in analysis.
- Information that can be collected from study plots include the volume of lumber that can be harvested from a tree or plot; density and dominance of particular tree species; the height and diameter of particular trees.
- Data collected from study plots can be used to infer current and future lumber prices as well as the relationship between tree height and diameter.

Duration: 1.5 hours

Cost: \$6.00 per student/parent chaperone. Teachers with the school are free. Payment should be given to the instructor at the start of the program. A second program can be booked at a cost of an additional \$3.00 per student.

Months Offered: September-December, February-May.

Common Core Math Standards:

Sixth Grade- 6.RP.1-3, 6.NS.7, 6.EE.6, 6.SP.1

Seventh Grade- 7.SP.1-2

Eighth Grade- 8.G.9, 8.SP.1-4

NC Essential Standards for Science:

Seventh Grade- 7.E.1.6

Starting Location: In front of the **Education Center** at the program start time (either 9:30 am or 12:00 pm) set upon booking the program. Groups arriving early may enjoy the property and facilities. Only school groups that have pre-registered for an exhibit visit may enter the exhibits at the Baker Exhibit Center.

What do my students need?

Students should wear clothing that is appropriate for the weather. A majority of the program will take place outdoors, so students, teachers and adult chaperones should wear sturdy footwear. Students with physical disabilities or limitations are capable of participating in the walk, but the instructor should be told prior to day of the program to make any special arrangements.

Want to schedule this program? Contact Michelle Pearce, Youth Education Coordinator, at mpearce@ncarboretum.org or (828) 665-2492 ext. 624