



Tree Math Prompts

Students Use Math Skills to Investigate a Tree

Trees provide an engaging subject for applying mathematical skills and concepts to the physical world. Below are some suggestions and examples that teachers can adapt as needed to their own grade level.

GRADES K-12

MATH, SCIENCE

EXPLORATION

MEASURING TOOLS

Materials

- Paper and pencils
- Rulers
- Measuring Tapes
- Protractors
- Goniometers

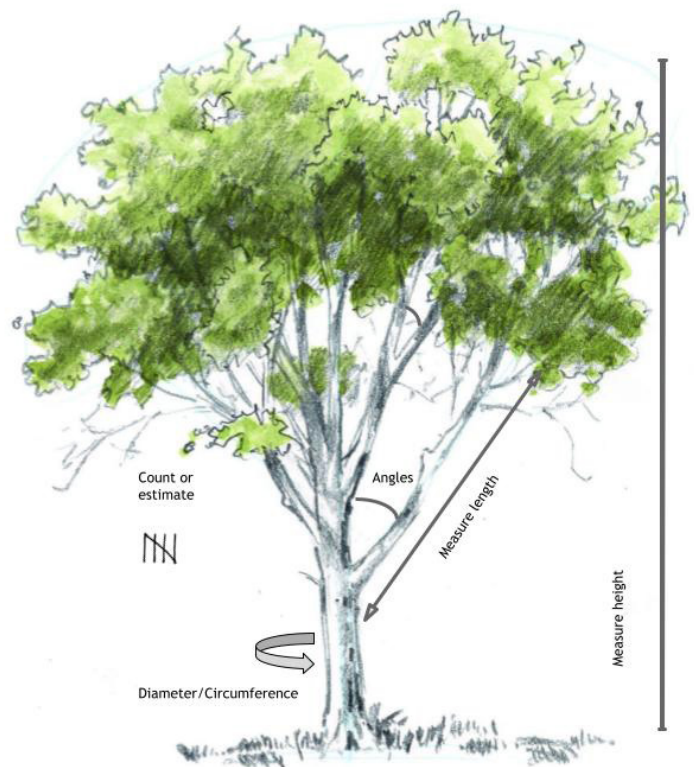
Prompts

Angles. For example, measure the angle where branches or twigs meet, the angle at the tip of a leaf, or the angle of leaf veins.

Counting. For example, count the number of leaves on a twig, petals on a flower, seeds in a pod or cone, or birds visiting.

Estimates. For example, how would you estimate the number of leaves on a branch or a whole tree? How would you estimate the surface area of a leaf?

Fibonacci Sequences. For example, observe bud or leaf arrangements, cone spirals, or petal numbers.



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Measurements. For example, measure length, height, circumference, and diameter. Use standard tools or biometrics, such as “as big as my hand,” or as “high as my knee.”

Patterns Everywhere. What patterns do you notice?

Percent Cover. For example, how much tree canopy cover is there or how much of the ground is covered with leaves or fruit?

Ratios. For example, calculate the ratio of leaf length to width, petiole length to leaf length, or green leaves to yellow leaves.

Stem and Leaf Plots. For example, how many leaves are on a branch or what is the angle where a branch meets the main trunk?

Venn Diagrams. For example, compare properties of different leaves or different trees.

Developing Inquiry Skills

The richest part of activities like these is often when students start going deeper and forming their own questions based on what they have been observing. Teachers don't have to answer all those questions. Instead, ask students how they would investigate.



NATIONAL SCHOOLYARD FOREST SYSTEM

The National Schoolyard Forest System™ seeks to create schoolyard forests on PreK-12 public school grounds across the country to directly shade and protect students from extreme heat and rising temperatures due to climate change. This initiative was founded by Green Schoolyards America, and launched with California as the first state in partnership with the California Department of Education, the California Department of Forestry and Fire Protection, and Ten Strands.

For more information, visit:
greenschoolyards.org/schoolyard-forest-system

AUTHOR

Ayesha Ercelawn

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