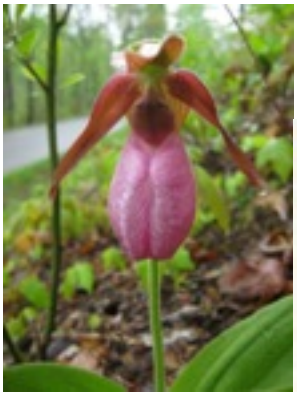
Math in Nature Definitions

Symmetrical
Made up of exactly similar parts facing each other or around an axis




Congruent
The same shape and size. Two shapes are congruent if you can Turn, Flip and/or Slide one so it fits exactly on the other.


Angles

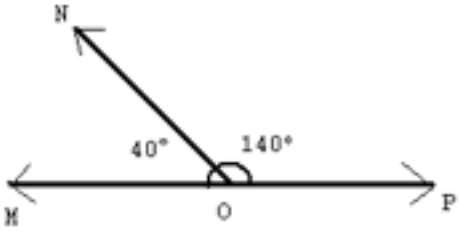
Acute Angle: less than 90 degrees

Obtuse Angle: greater than 90 degrees

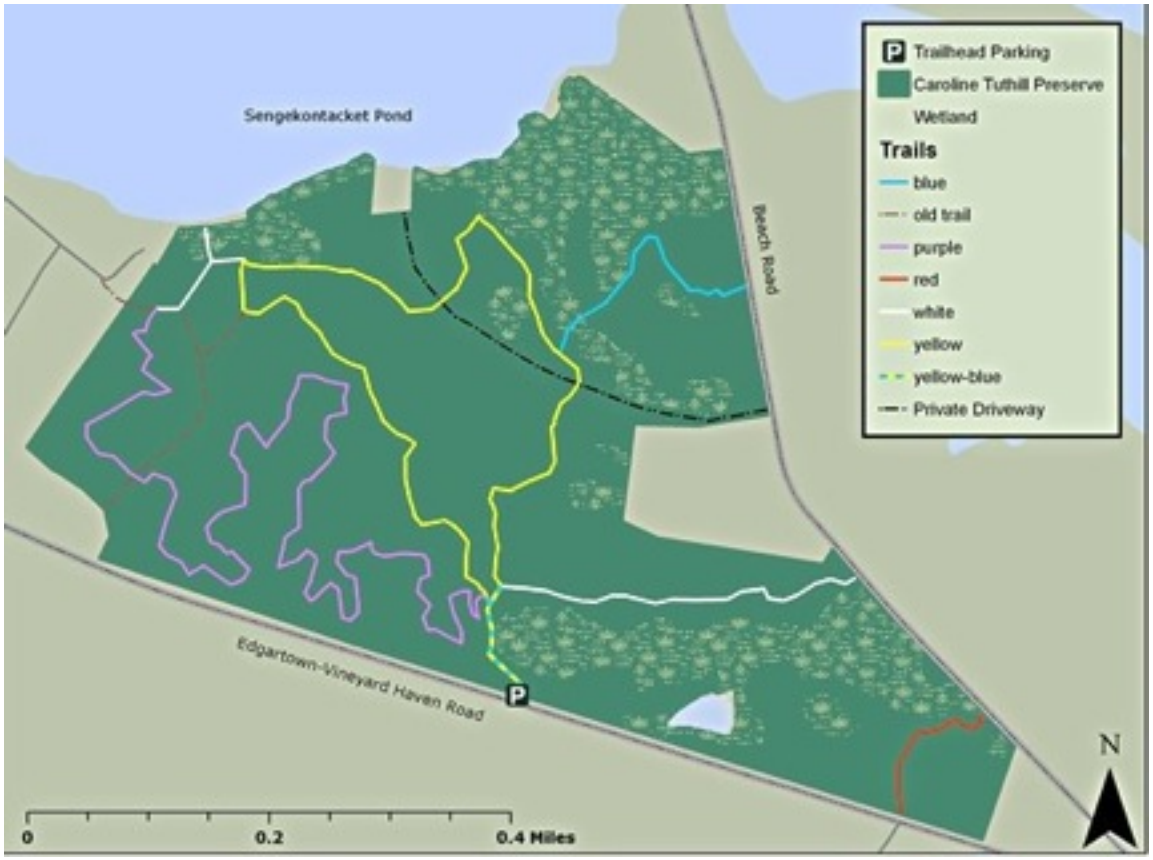
Right Angle
An angle that is exactly 90 degrees. There is debate about whether or not right angles exist in nature. Some say Beetlebung trees have branches that extend at right angles from the trunk.
What do you think?


Supplementary Angle

Two Angles are Supplementary if they add up to 180 degrees.



Trip Itinerary Math in Nature



Start on the yellow/blue trail. Take a right onto the white trail. Along the white trail…

1.) Stop at the open area on the left side of the trail. Have students each collect two sticks, and a variety of natural materials. Have them make different angles using sticks. They could also build a structure with multiple different angles, and test the strength of different parts of their structure by putting things on top of it. Take photos of the structure for a class poster or bulletin board.

2.) Stop at the big holes. Explain to students that these are called "borrowing pits" or "sand boxes" and they are areas where sand and gravel was taken for construction projects. Students can measure the diameter, depth, and circumference of these holes. Have them practice converting between inches, feet, and yards as is age appropriate.

Take a left at Beach road and follow the bike path. Take a left on the blue trail.

3.) Visit the viewing platform for the salt marsh. This is a great place to look for angles in nature. There are Beetlebung trees, red maple trees, and you can look across the marsh and see the salt spray line on the trees.

Take a left on the yellow trail, then left back onto the yellow/blue trail. Along this stretch of trail…

4.) Collect sticks and do an angle measuring activity (variation of the Everyday Math game Angle Tangle). This can be done with the provided protractors or using a carpenter app on iPads. See student sheets in folder.

Angle Measuring Activity

The partner who has the lowest total difference (whose angle estimates are closest to their exact measurements) wins the game!

Estimate	Exact Measurement	Difference
	Total the Difference Column to get your score:	

Sheriff's Meadow Foundation *Education Program*

Student Observation Sheet *Math in Nature*

Math Word	Name of Natural Object	Drawing or Notes