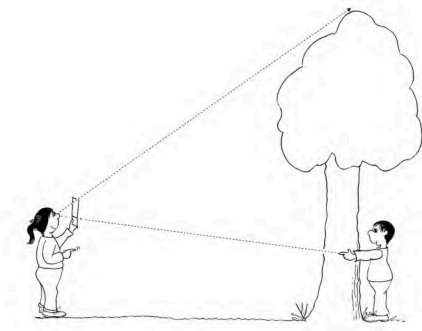


THE BUDDY SYSTEM:

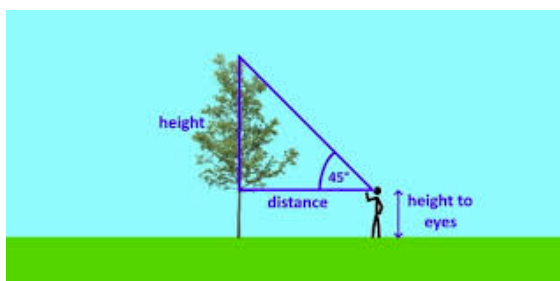


Here's an easy way to measure the height of a tree with a buddy! One person will be the 'Pencil Holder' and one will be the 'Ruler'. Make a guess about the size of the tree before you measure.

1. The Ruler will stand next to the tree while the Pencil Holder walks away from the tree. Go just far enough so that when you hold up your pencil, it lines up with the tree.
2. Hold your pencil in front of you with your arm outstretched. The eraser end should line up with the bottom of the trunk and the tip of the pencil should line up with the top of the tree.
3. The Pencil Holder points the pencil at the Ruler. Keep your arm outstretched!
4. The Ruler walks towards the Pencil Holder and stops when they reach the point of the pencil. This marks the spot!
5. The distance between the tree and the marked spot is the height of the tree. You can measure it with a real tape measure or count it out in steps.
6. Next switch places (and trees if you'd like!) so everyone gets a chance to be the Pencil Holder and the Ruler. Was the tree bigger or smaller than you expected? Which job was more fun - the Pencil Holder or the Ruler? Explain why.

ESTIMATE:

No pencil or ruler? No problem! This method of measuring the height of a tree is only an estimate, but uses trigonometry. If you look at the top of a tree at a 45 degree angle then the height of the tree (h) is the same as the distance that you are from the tree.



HUG-A-TREE:



Now that you know how tall a tree is, are you curious to know how wide around a tree is? That is called 'diameter'. Ready to find out the diameter of a tree? Gather your favorite people and get ready to hug!

1. Have everyone stand around the tree with their fingertips touching. Does it take one person? Two? More?
2. Line up the same people that circled the tree in a straight line, touching fingertips just like they did around the tree.
3. Measure the line of people with a measuring tape or have someone else roughly estimate by counting their steps. Now you know how wide the tree is!

Fun Fact: your arm span is nearly the same as your height! How many of your arms would it take to reach the top of the tree?

Happy Measuring!