

How to Measure a Tree

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We value trees for their esthetic value as well as realizing they give oxygen during photosynthesis while taking carbon dioxide from the air to make food (sugar). **It is important for all of us to realize that the any plants we use, including wood of a tree, is made from the carbon dioxide in the air.**

Wood is a source material for building, furniture, energy generation and a healthy ecosystem. It is the job of foresters to measure trees to determine the amount of wood available for these options.

Vocabulary:

Pace/step Chain Diameter at breast height (DBH) logs Biltmore Stick

Procedure:

Forestry uses some unique measurements that I find unusual but intriguing. They are a throwback to the 1800s but are still used today in forestry (see **Using a Biltmore Stick**). It is important to note that this is an approximation and that individual measurements will vary to some degree. It lends itself to mean, median and mode calculations.

1. Every person will get their own **Biltmore Stick**
2. We will label the stick together using **DBH** and **# logs** as labels (DBH is 4.5 feet high and a 'log' is 16 feet in length).
3. We will measure or pace off 66 feet (which is a '**chain**') and each person will determine their individual number of **paces** for a chain. A **pace** is equivalent to two **steps**.
4. We will then select a tree, identify it, examine it and then measure its **diameter** and number of '**logs**' it has.
5. We will then break into groups of about 4 to find 4 trees to repeat the procedure. Each member should do **diameter** and **# logs** so you can compare.
6. We will discuss any problems you encountered and what you see as useful changes for your classroom.

I suggest having students make their **Biltmore Sticks** in class. The wood could be cylindrical, square cross-section or like ours it makes no difference. By making them, students will use math skills of accurate measurement and reading a measuring tool. They will also use fractions and see the relationship of decimals and fractions. The details for making these sticks are on **Using a Biltmore Stick**.