budburst
a project of the Chicago Botanic Garden

BUDBURST FOR FAMILIES

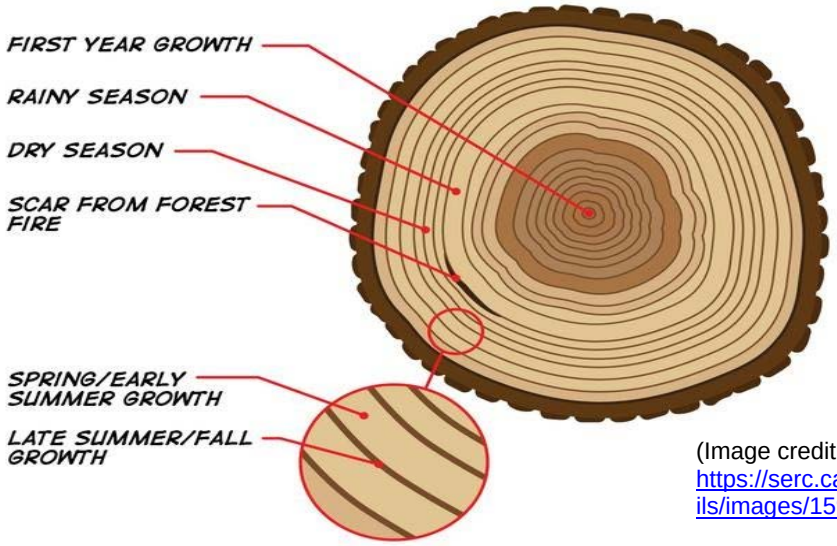
Spending Time with Family and Plant Friends!

Title: How Old is That Tree?

Age Group: 1st – 4th Grade (with adult) help and 5th – 8th grade

Purpose:

- **Why?** This activity uses basic math skills to understand how trees grow. It is a one-time observation, but it can be even more interesting to take measurements of the same tree over time and compare and graph the results for real STEM learning.
- **How?** Grab a measuring tape and find your favorite tree in your yard, on your block or in your favorite park. You'll need a calculator after you measure the circumference of your tree.
- **What?** A fun family activity to engage with nature and learn two ways to find out how long a tree has been growing.



(Image credit: https://serc.carleton.edu/details/images/159482.html)

Steps:

There are two ways to learn how old a tree is - the first way, counting tree rings, can only be done when the tree has been cut down. Using the tree ring method, also called dendrochronology, a scientist (you!) can count the number of tree rings from the very center of the tree to the outer bark to count the number of growth cycles - or years- the tree has been alive. Think of the tree ring like a target - you would start counting at the bullseye and move out to the outer layer of bark.

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Today, you are going to measure the circumference of the tree (the distance around the tree) to calculate the diameter.

1. Grab a long tape measure and find the tree you'd like to measure.
2. Measure the circumference of the tree at about 4 ½ feet from the ground (the height of an average American 4th grader). Note that measurement.
3. Now it's time to use your calculator. Use the circumference in inches and divide it by 3.14 (pi) to find the diameter. For example, if your tree has a circumference of 58 inches, your equation would be:

   58 / 3.14 = 18.47

   The tree you measured has a diameter of 18.47 inches. The diameter in inches is the approximate age of your tree in years.

If you want to learn more read this: https://www.thelivingurn.com/blogs/news/79236289-how-to-determine-the-age-of-a-tree

To see an illustration of circumference, diameter and radius go to:
https://www.mathplanet.com/education/pre-algebra/more-about-equation-and-inequalities/calculating-the-circumference-of-a-circle