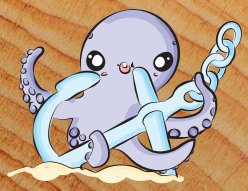
Lesson Anchor

Measure the age of a tree

Explore the Phenomenon



Trees are tough plants! They grow to be strong and tall. A tree grows a new light ring and dark ring for every year that is alive. Do you notice how the light rings are a little thicker than the dark rings? That's because light rings grow in the springtime when water is plentiful—the tree is able to grow a lot. Dark rings are a little thinner and harder because they form in the fall and winter when less growth occurs. It takes many years for a tree to grow, and you can know how old a tree is by simply counting its rings.

How old is this tree? Use the red marks on the picture to help you count the rings.

This tree is at least 66 years old.

Estimate the age of a tree by measuring its trunk

You can estimate how old a tree is by measuring its circumference, and doing some simple math. The circumference is the distance around a circle. Since some types of trees grow fast and others grow slowly, you can use a growth multiplier for your math problem to represent how fast or slow a specific type of tree grows. Try estimating the age of a tree in your schoolyard by measuring it.

What you'll need:

A measuring tape or piece of string, and a calculator.

What you'll do:

1. Use your tree identification chart to identify your tree. If you can't exactly identify the tree, just choose a leaf shape from the chart that is similar.

2. Measure how big it is around the tree's trunk.

3. Calculate how old your tree is using the instructions on the next pages.

TREE IDENTIFICATION GUIDE

Use this leaf identification chart to find a similar tree on your school grounds. If you can't find a tree with leaves exactly like these, just choose a leaf shape that is similar.

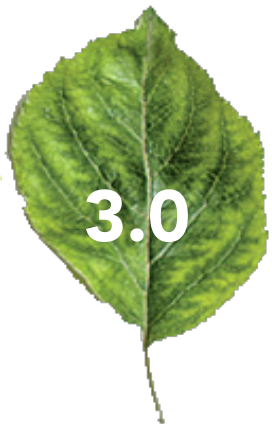
Basswood

Redbud

Ash

Red Maple

Birch



Basswood

Black Cherry

Cottonwood

Dogwood

Beary Leaf

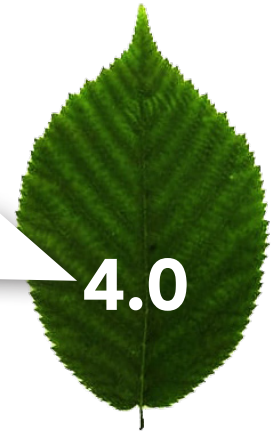
Hickory

Oak

Silver Maple

GROWTH MULTIPLIER

The number shown inside each leaf is the Growth Multiplier that you will use for your calculation.



Elm

Use this mathematical formula to estimate your tree's age. You will need a calculator to calculate decimals. Use the circumference of your tree and the growth multiplier in this equation.

Calculate a tree's age using this formula:

$$\textbf{The age of the tree} = \left(\frac{\textbf{Circumference (in inches)}}{\textbf{3.14}} \right) \times \textbf{Growth Multiplier}$$

Do your mathematical calculations here.

Example:

I can see in the Tree Identification Guide to the left that a red maple tree has a growth multiplier of 4.5, so I will plug that number in to the equation. If I measure how big around the tree is (the circumference) and find that it is 20 inches around, the equation would look like this:

The age of the tree = (20 inches ÷ 3.14) x 4.5

The age of the tree = 28.6 years old

Note: This is an estimate of the tree's age. Estimates like this are useful because we can get a good idea of the tree's age without cutting it down or hurting the tree to find out how old it is.

Can you explain it?

What do trees need to live and grow?

This is a lesson anchor. Just lead a discussion. You are not looking for right answers, you are looking for deep thinking.