Coastal Forest

THE GOLD RUSH CONTINUES!

Monetary Value of Trees

Purpose of This Activity: To understand the economic importance of trees to our society, both in the past and the present.

In the late 1840s, the ship "G.W. Kendall" sailed into Puget Sound in a hopeless search for icebergs (to be used in drinks in California). The captain had to settle for a load of piling (large, heavy wood beams), and timber soon became established as our region's primary export. The California gold rush of 1849 would follow, creating a tremendous demand for piling and lumber. As San Francisco boomed, lumber prices in the Northwest jumped tenfold in less than a year. Subsequent gold rushes in northeastern Washington, Idaho and British Columbia lured miners to the Northwest. Many of them stayed, usually to farm or work in the fishing and forest industries.

In the decades that followed, the monetary value of trees was affected by many factors. These included Indian Wars, the Homestead Acts, railroads, fires, World War I (Boeing built airplanes made from spruce), the Great Depression and World War II and the population explosion that followed. In addition, numerous laws have been enacted that shape the ways state and federal forestlands are managed.

So how valuable is a stand of trees in dollars and cents? You might be surprised at how valuable wood products are at today's prices. Use the following procedure to determine the value of a stand of trees, or even just one tree if that's all you have available. You'll need to have two dimensions for each tree, the height and the diameter. If you have too many trees to measure, take a sample using some of the trees, then find an average.

Finding the approximate height of a tree can be very simple. You'll need to people. One person (the one closest to 5' tall) stands next to the tree. The second person walks back far enough so that when he or she makes a fist and holds it out in front, with arm out-stretched, the first person by the tree appears to be the same size as the fist.

In the line of sight, the fist appears to be next to the tree. To measure the tree's height, put one fist on top of the other until level with the top of the tree. Count the number of fists, and multiply by 5. This will give you the approximate height of the tree.

To find the diameter, take a string and wrap it around the tree at chest height, which is approximately four feet high. Put a knot in the string where it meets with the end. Then, with a ruler, measure the string to the knot in inches and divide by 3.14 to get the diameter.

Now use the following table to determine how many “board feet” could be derived from the tree when it was cut into lumber. A board foot is a board 12” x 12” x 1”. As the chart below shows, a 60’ tree measuring 12” in diameter would yield 50 board feet.

Tree Diameter (inches)	Height of Tree (feet)								
	40	50	60	70	80	90	100	110	120
	Board Foot Volume								
8”	10	20	20	29	30	30	–	–	–
10”	20	20	40	50	50	70	80	–	–
12”	30	40	50	70	80	90	110	120	–
14”	30	60	80	100	120	150	180	190	210
16”	30	80	110	140	180	190	210	250	280
18”	–	90	120	180	210	250	290	330	350
20”	–	130	180	220	270	320	360	390	470
22”	–	–	–	280	310	390	450	500	540
24”	–	–	–	320	430	470	550	590	700
26”	–	–	–	–	–	600	650	750	830

To calculate the total amount of board feet, add the volumes of the individual trees you are measuring. If you need to use an average because you have too many trees, add the individual tree volumes together and then divide by the number of trees you measured. Then multiply the total by the number of trees in the stand.

The value of trees before they are harvested and delivered to market can vary. General market conditions are an important factor. In the depressed markets of early 1980s for example, Douglas-fir trees were valued around $275 per 1000 board feet. In the early 1990s they were valued around $660 per 1000 board feet because of cutbacks in supply, among other factors.

What would have been the economic value of your trees in early 1980s and the early 1990s? Name some things you think might cause the value of your trees to decrease. Trees that have been damaged by insects or disease are not as valuable. Trees that are misshapen and with large limbs also have less value. Tree species also is important. Douglas-fir and ponderosa pine trees traditionally have been the most valuable, but cedar has risen in cost recently. (See the chart below.) Douglas-fir trees are currently worth about eight times as much as alder trees, and big-leaf maples bring in the same amount of money it takes to cut them down and deliver them to market. To determine the monetary value of your trees, divide the total volume by 1000 and multiple that answer by price paid per 1000 board feet. Look at your stand of trees to see if you should deduct from the total for trees that are diseased, misshapen or have large limbs.

Next, determine how many trees you would need to build an average size house. A house usually required about 10,000 board feet. Do you have enough trees to build a house? How many houses could you build from your trees?

Species	Tree Values, $/1000 Board Feet (1993 Average)
Douglas-fir	626
Ponderosa pine	385
Hemlock	334
Cedar	805
Alder	71
Maple	71

Make a display that shows your methods and calculations. Illustrate, photograph or video each step you took. Your display should also show what could be built with the amount of wood in your stand of trees. Write a short essay on why tress were valuable during the California gold rush, and why you think trees are valuable today. (Remember: Trees are used for many things besides houses.) Are trees valuable today for the same reasons they were valuable during the gold rush? Consider the effects of population growth on the value of trees, from both a monetary and an environmental perspective.