

## ***How Much Money Grows in Trees?***

**Subject(s):** Science, Math, English

**Grade Level:** 7<sup>th</sup>-12<sup>th</sup>

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The Students will: (1) Identify various Idaho tree species and determine whether they are marketable, (2) Measure height, diameter and determine age of three trees. (3) Compute usable board feet in their measured trees. (4) Determine market value of the trees.

### **Time Required:**

Preparation: one hour. Tree identification and measurement: two class periods (Science), Calculations: one class period (Math), Technical writing: two class periods (English). Contacting lumber mill: after school assignment

### **Materials Needed:**

Tree field guides and/or identification keys, increment borer, clinometer, dbh tape, word processor, telephone, calculator.  
OPTIONAL: Instructions for homemade clinometer. Project Learning Tree Forest Ecology module, pp. 38-39.

### **Lesson Objectives:**

### **Procedure**

Preparation: Locate a site for the field trip. Obtain needed equipment (increment borers, DBH tapes, and clinometers may be borrowed from the Idaho Forest Products Commission, or possibly from the Forest Service, BLM, Universities or Colleges). Coordinate the activity with other teachers (i.e. English and Math) in advance, notify individuals such as lumber mill managers that students will be contacting them, get approval to visit the field site, copy data gathering sheet.

1. Take students to the learning site and identify the plant and tree species. As you do this teach students which trees have marketable value. (1 class period)
2. Return to learning site and teach students how to use clinometers, tree borers, and DBH tape (approximately 20 minutes). Divide class into teams of 4. Provide each team with clinometer, increment borer and DBH tape. Assign each team to find three marketable species of trees and run each assessment and record data.
3. Each team is assigned to contact a representative from a lumber company or government agency to obtain the value of the board feet at the present time. Then use that information to place a value on the 3 trees they assessed earlier.
4. Each team will complete a written assessment integrating the English, Math, and Science portions of this activity.

Enrichment: A student from each team will give a brief report on their findings and another student from each team will form a panel to discuss the importance both the economic, aesthetic, and social value of our forests.

### Assessment Opportunity

1. Each team prepares a technical paper describing the process used to measure height and diameter of trees, calculate board feet, and determine value.
2. Individual students must demonstrate proficiency at doing calculations required by this activity.
3. Individual students must teach a student from another class how to distinguish between different conifers.

## Learning from the Forest

**Using the Clinometer**

1. You use one eye when you look through the clinometer.

True or False

2. Each clinometer is set up to be used at a certain distance.

True or False

3. Ground slope may be found by reading the dial on the side of the clinometer.

True or False

4. When sighting a tree if the number at the base of the tree is below zero should it be added or subtracted to the number sighted at the top of the tree.

\_\_\_\_\_

5. A clinometer may be used to determine the slope of a stream.

True or False

**DBH and Increment Borer**

1. The DBH should be taken at what height on the tree?

2. DBH stands for \_\_\_\_\_  
\_\_\_\_\_

3. How far into the tree should you bore when taking a core sample?

4. Before pulling a core sample out, how many turns should you back off?

5. Dark bands that are close together on a core sample may indicate \_\_\_\_\_?

(Name 3 things)