
Instructor: **Kenneth L. Jagon**

Subject: **Woodworking**

Know your Lumber (Woods)

Description of Activity

When a student builds an electric guitar in this program, they are getting a hands-on introduction to a minimum of two wood species. This activity will give students an opportunity to learn about the woods that compose their instrument. Characteristics that will be explored include:

- Relative Hardness
- Common Uses
- Color, Grain and Figuring
- Cost
- Board Feet

Students will learn about CITES regulation, the Janka hardness scale, board-foot calculations for both quantity and cost, density calculations, and lumber grading for both quality and surfacing.

Learning Objectives:

(List measurable objectives.)

1. Identify a wood species based on color, grain, and figure.
2. Use the Janka scale to arrange a selection of woods in order of increasing hardness

3. Calculate the quantity, in board feet, of a sample of lumber
4. Calculate the density of lumber, in pounds-per-board-foot, for a sample of lumber
5. Calculate the cost for an order of lumber based on cost-per-board-foot.
6. Recognize notation for surfacing when placing a lumber order.

Standards:

STANDARD: 1	The student will understand wood as a building material, from tree growth to lumber used in construction, cutting of boards from logs, grading of lumber and treating.
BENCHMARK: 1.1	The student will explain how the tree is cut into lumber, describe the kinds of wood, grades of lumber, and how they are stored

Materials Required:

1. A computer with internet access for each student
2. Woods PowerPoint https://docs.google.com/presentation/d/13lbkCcfz2oZq0jPH1WTxCHpcOInoQPEY/edit#slide=id.p1
3. A wood identification.
4. Pencil and calculator for board-foot and cost calculations
5. Calipers to accurately measure the thickness of various wood samples
6. Tape measure to accurately measure the width and length of various wood samples
7. Guitar kits (prior to finish and assembly!)
8. A price of hardwood to be used for cost calculations

Safety:

Watch for splinters and be sure to wear eye protection in a lab setting.

References:

- Website: www.guitarbuilding.org
  https://www.math-aids.com/
  ASDOE Curriculum

1. The Wood Database - WoodFinder: http://www.wood-database.com/wood-finder
2. CITES Regulation: https://www.cites.org/eng/disc/what.php
3. Lumber Grading and Notation - American Hardwood Export Council:

   https://www.esf.edu/wus/documents/IllustratedGradingGuide.pdf
4. Lumber Surfacing and Notation - The Wood Whisperer:

   https://www.thewoodwhisperer.com/articles/s2s-and-s4s-what-gives

Quiz:

1. https://docs.google.com/document/d/1V1FvaEo3cfKnF4upyK7QtOm_RKOvVC-FJqfsO94B9G4/edit#heading=h.wsnb9fpyje6o
2. https://docs.google.com/document/d/1yxl7AriV0djZ2XPMyw-StJGLrt8V19_SdJm9dHSywyY/edit

Assessment Key:

Quiz 1

1. J
2. L
3. P
4. A
5. G
6. K
7. F
8. B
9. O
10. I
11. H
12. N
13. M
14. C
15. D
16. E
17. S
18. T
19. R
20. Q

Quiz 2

1. 4
2. 8
3. 0.66
4. 2
5. 3.5
6. 2.25
7. 0.5
8. 5
9. 3.75
10. 0.66

Reviewing Faculty Cohort Members:

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