**Lesson Information**

|  |
| --- |
| Lesson: (1 of 2) Building Materials, Fasteners, and Adhesives Length: 90 minutes  Unit: (1 of 4) Materials and Tools  Course: Carpentry |

**Content Assumptions**

|  |
| --- |
| Prior to this class, students have taken communication, safety, math, and construction drawing courses (cross-references to be included later). |

**Essential Questions**

|  |
| --- |
| 1. How are carpentry materials chosen and used? |

**Objectives Assessments**

|  |  |
| --- | --- |
| After completing this lesson, students will be able to:   1. Demonstrate knowledge of basic carpentry materials and how they may be used together. 2. Translate information found on construction drawings into quantities of building materials. | 1. Crossword puzzle — key Written rationale for materials estimate —rubric 2. Materials estimate — checklist |

**Activities/Instruction**

|  |
| --- |
| **Show and Tell** (30 minutes)  Using selected samples, Instructor explains the composition and use of building materials. Instructor allows students to see each sample and gives time for students to ask questions. Instructor also explains how samples are measured (i.e., board-feet for lumber, square footage for sheet material, number for fasteners, and volume for adhesives). Whenever relevant, Instructor includes considerations for real-life construction situations. For example, when considering lengths of lumber, board-feet may not always be as effective a unit as linear feet; Instructor may offer a window- and door-framing situation as an example of this. Students take notes to help them complete a crossword puzzle worksheet.  **Teach Each Other — Lumber Stamps and Lumber Safety** (30 minutes)  Instructor directs half the class to the Web-based SDS for Georgia-Pacific engineered lumber and the other half to the Web site describing lumber grade stamps (as listed in the Materials section). (Alternatively, Instructor may print copies of these Web pages for students.) Instructor tells students that they are to scan their documents and learn either how to read grade stamps on lumber or how to safely work with engineered lumber (including safe handling/storage practices and personal protective equipment requirements). Students review their documents, find the appropriate information, and take notes. Instructor tells students to pair up with someone who read a different document, then teach each other what they learned. Again, students are to take notes. Instructor may choose to use these notes and/or observations of student participation as a formative assessment.  **Construction Planning: Materials Estimate** (30 minutes)  Instructor distributes copies of the chosen construction plans and explains the task. Students are to estimate the amount of materials (lumber, sheet material, fasteners, and adhesives) to be used in construction. Along with their estimates, students are to write a rationale defending their choice of materials. |

**Materials**

|  |
| --- |
| For students:   * Samples of building materials: small pieces of lumber, different kinds of fasteners, etc. * [CARPENTRY MATERIALS CROSSWORD] * http://www.gp.com/build/product.aspx?pid=1395 (Under the “Safety and Sustainability” tab, at the bottom of the page is a link called “MSDS #33Q: ACQ Pressure Treated Wood and Lumber.” This link downloads a .pdf file of the SDS.) * http://www2.wwpa.org/SERVICES/QualityServices/GradeStamps/tabid/434/Default.aspx (Guide to interpreting lumber grade stamps) * Plans for a simple construction project (e.g., shed, doghouse, deck without stairs) that requires lumber, sheet materials, fasteners, and adhesives to construct   For Instructor:   * [CARPENTRY MATERIALS CROSSWORD KEY] * [MATERIALS ESTIMATE CHECKLIST] * [RATIONALE FOR MATERIALS ESTIMATE RUBRIC] |