THE POWER OF PARTNERSHIPS: FACULTY WORKING TOGETHER ACROSS DISCIPLINES

Strengthening Student Success Conference
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Rene Newell  El Camino College
Laura Hinckley  El Camino College
Pam Sanborn  Cabrillo College
Calais Ingel  Cabrillo College
Tom Vessella  LA Trade Tech College
Carmen Viliesid  LA Trade Tech College
Peter Simon  Career Ladders Project

CAREER LADDERS PROJECT
fosters educational and career ladders through research, policy initiatives, and direct assistance to community colleges.
Contextualized Teaching and Learning (CTL)

Many people learn better and faster, and retain information longer, when they are taught concepts in context.

- Makes it relevant
- Engages and motivates hard-to-reach students
- Increases learner confidence & enthusiasm
- Enhances interest in long-term goals & education

Center for Student Success, Research & Planning Group. *Basic Skills as a Foundation for Student Success in CA Community Colleges*, p. 58.
Contextualized Teaching and Learning (CTL)

- Strategies to link essential skills & academic or occupational content
  - concrete applications
  - specific context of interest to the student

Includes:
- Design of curricula
  - integration of essential skills & content
- Teaching
  - use of cases, project-based learning and other student-centered practices
- Assessment
  - examining application of knowledge and the transfer of skills
Different ways to accomplish CTL

- Infused academic courses
- Infused career technical courses
- Linked courses or learning communities
- Team teaching of integrated academic and occupational courses

D. Perin. *Academic-Occupational Integration as a Reform Strategy for the Community College: Classroom Perspectives*. Teachers College Record, vol. 103 2010

Evidence in CA Community Colleges

Students in contextual math compared to standard math:

- 327% more likely to pass contextual course
- 387% more likely to pass degree applicable coursework in the same semester
- 400% as likely to pass transfer-level course in same semester

Contextualized students also more likely to complete degree applicable as well as transfer-level courses in subsequent term.

These effects more pronounced for Black and Hispanic students.
The Key Element is Faculty Collaboration

Form Team that becomes a “Faculty Learning Community”

Meet Regularly / On-going Communication

Adequate time/resource for front end development

Synchronize syllabi – progression of skills

Joint Projects

Spend time in each other’s classes
### Math 12 Welding Vocabulary

Name ________________________________

Directions: Using the glossary of your textbook, identify each item below. Find the item in the welding shop. Write a description &/or make a drawing of each item. Complete the min & max dimensions. Otherwise give an example of a possible dimension.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description/Drawing</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle</td>
<td>Steel rolled and formed with a cross-section shaped like the capitol letter L.</td>
<td>4” x 4” or 2” x 3”</td>
</tr>
<tr>
<td>Channel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold-Rolled Steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat bar</td>
<td></td>
<td>max: min:</td>
</tr>
<tr>
<td>Hot-Rolled Steel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. A welder uses 3.18 cubic feet of acetylene gas to cut one flange. How much acetylene gas is used to cut the 19 flanges?

4. A welder uses 7.25 cubic feet of oxygen gas to cut one flange. How much oxygen gas is used to cut 19 flanges?

**NOTE:** Use this diagram for Problems 5–7.

5. Each of these welded brackets weighs 2.8 pounds. A welder makes 13 of the brackets. What is the total weight of the 13 brackets?

6. The steel plate used to make the brackets cost $1.53 per pound. Each bracket weighs 2.8 pounds. What is the total cost of the order of 13 brackets? Round the answer to the nearest whole cent.

7. The welder cuts two holes in each bracket. Each bolt-hole cut wastes 0.1875 pound of material. Find, in pounds, the amount of waste for the order of 13 brackets.

8. **a.** A welder cuts 14 squares from a piece of plate. Each side is 4.125”. What is the total length of 4.125”-wide stock needed? Round the answer to two decimal places. Disregard waste caused by the width of the cuts.

   **b.** From a 96” length of 4.125” stock, how many inches are used for the 14 squares if the kerf width is 0.125”?

9. A MIG unit has a melt-off of 1.6 pounds/hour of wire. How many pounds will be melted in 16.25 hours?
d. Subtract \( 10.732 - 6 \)

e. Subtract \( 6.7 - 1.385 \)

f. Subtract \( 23.8 - .972 \)

2. What is dimension A?

3. What is the total weight of these three pieces of steel? Round the answer to two decimal places.
Rene Newell  rnewell@elcamino.edu
Laura Hinckley  lhinckley@elcamino.edu
Pam Sanborn  pasoanbor@cabrillo.edu
Calais Ingel  caingel@cabrillo.edu
Tom Vessella  VesselTJ@lattc.edu
Carmen Villiesid  ViliesCN@lattc.edu
Peter Simon  psimon@careerladdersproject.org

www.CareerLaddersProject.org