Columbia College

Pirates of the MAC\textsuperscript{5}

Captain Anne MAC\textsuperscript{5}

Second Mate Shannon

Sea Wench Casey

First Mate Ida

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Applied Math in the Workplace

Problem Solving

Office Computer

Welding Auto

Culinary Fire Child

Business

Payroll Accounting

Fall 2007
Pirating Math in a Payroll Sea

Problem Solving Module
- Infused instruction
- Wage Theme
- Problems adapted to Vocational Context
- “Just-in-Time” math instruction

Goals
- Achieve desired level of workforce competencies
- Identify students with deficiencies
Problem Solving Process

Four Paces to the Treasure

1. Understand the problem/Preparation
2. Devise a plan/Incubation
3. Carry out the plan/Illumination
4. Check results/Verification
Current Course Content

- Computing Salaries and Wages Under FLSA
- Social Security Taxes
- Income Tax Withholding
- Unemployment Compensation Taxes
Workforce Expected Competencies*

Reach Your Level Or You Be Walking the Plank Matey!!!

• Level 3
  – Information given in a logical order
  – No extra information
  – Single operations

• Level 4
  – Information without order
  – Extraneous information included
  – Multiple operations
  – Interpret graphs and diagrams

• Level 5
  – Multi-stage logic and calculations
  – Decisions on needed information
  – Comparisons for best choice
  – Use of formulas for conversions

• Level 6
  – Error detection and trouble shooting
  – Translation from verbal to symbolic
  – Use of more complex formulas

• Level 7
  – Format unusual
  – Incomplete problem formulation
  – Four or more steps of logical reasoning
  – More than one unknown
  – Optimization

*Based on ACT WorkKeys
Cheryl’s time card and pay stub for week ending 1/19/07 are shown below. Cheryl feels that she has been under paid, explain. (Level 6)

<table>
<thead>
<tr>
<th>Date</th>
<th>Time In</th>
<th>Time Out</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/15</td>
<td>8:00 am</td>
<td>3:30 pm</td>
<td>7.5 hrs</td>
</tr>
<tr>
<td>1/16</td>
<td>8:15 am</td>
<td>4:30 pm</td>
<td>8 hrs. 45 min.</td>
</tr>
<tr>
<td>1/17</td>
<td>8:15 am</td>
<td>4:30 pm</td>
<td>8 ¼ hours</td>
</tr>
<tr>
<td>1/18</td>
<td>8:00 am</td>
<td>4:15 pm</td>
<td>8 hrs. 15 min.</td>
</tr>
<tr>
<td>1/9</td>
<td>8:00 am</td>
<td>4:45 pm</td>
<td>8.75 hrs</td>
</tr>
</tbody>
</table>
Back to Sea
Psychology

- Literature Review
- Survey
- Development

Statistics

- Scientific Method
- Experiment Design
- Correlation
- Survey
- Simply Random Sampling
- Hypothesis Formulation
- Population
- Graphical Display

- Confidence Intervals
- Hypothesis Testing
Treasured Outcomes

Students will be able to:

- Develop critical thinking skills
- Differentiate between scientific and pseudo-scientific data
- Apply statistics in real world experiences
- Generate more in-depth statistical analyses
- Produce more meaningful work