## columbia College

## Pirates of the MAC ${ }^{5}$



Second Mate Shannon


Anne Cavagnaro cavagnaro@yosemite.edu
Casey Bonavia bonavia@yosemite.edu
Shannon Hasset hassets@yosemite.edu Ida Ponder ponderi@yosemite.edu


## 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

圆 Computing Salaries and Wages Under FLSA

Social Security Taxes
Income Tax Withholding
圈 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


## Sample Problem

## Balance the Booty

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)

| Employee Time Record <br> Employee Name Cheryl Crowson <br> Pay Type Salary <br> Pay period for the weekending January 19, 2007 |  |  |
| :--- | :--- | :--- |
|  |  |  |
| Date | Time In | Time Out |
| $1 / 15$ | $8: 00 \mathrm{am}$ | $3: 30 \mathrm{pm}$ |
| $1 / 16$ | $8: 15 \mathrm{am}$ | $4: 30 \mathrm{pm}$ |
| $1 / 17$ | $8: 15 \mathrm{am}$ | $4: 30 \mathrm{pm}$ |
| $1 / 18$ | $8: 00 \mathrm{am}$ | $4: 15 \mathrm{pm}$ |
| $1 / 9$ | $8: 00 \mathrm{am}$ | $4: 45 \mathrm{pm}$ |





## Treasured Outcomes

Students will be able to:
Develop critical thinking skills
Differentiate between scientific and pseudoscientific data
Apply statistics in real world experiences
Generate more in-depth statistical analyses

- Produce more meaningful work

