

Columbia College

Pirates of the MAC⁵



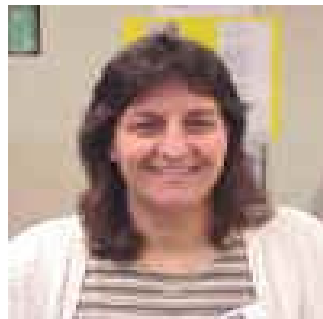
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Pirating Math in a Payroll Sea

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

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			
Employee Name <u>Cheryl Crowson</u>			
Pay Type <u>Salary</u>			
Pay period for the weekending <u>January 19, 2007</u>			
Date	Time In	Time Out	Total Hours
1/15	8:00 am	3:30 pm	7.5 hrs
1/16	8:15 am	4:30 pm	8 hrs. 45 min.
1/17	8:15 am	4:30 pm	8 ¾ hours
1/18	8:00 am	4:15 pm	8hrs. 15 min.
1/9	8:00 am	4:45 pm	8.75 hrs

Paycheck with Stub Showing Current and Year-to-Date Earnings and Deductions

REGULAR HOURS	O.T.B. HOURS	REGULAR EARNINGS	O.T.B. EARNINGS	GROSS EARNINGS	OASDI	HI	FIT	SIT
40	1	548.08	20.55	568.63	35.26	8.25	61.00	19.00
DEDUCTIONS								
		1. MISC.	5. SPECIAL INSURANCE		9. TOOLS			
		2. BONDS	6. WELFARE FUND		10. RELIEF ASSOC.			
		3. CREDIT UNION	7. ADVANCES		11. SHOES			
		4. GROUP INSURANCE	8. UNIFORMS		12.			
418	S	1 19		1,705.89	105.77	24.74	183.00	57.00
CLOCK NO.	RATE	PERIOD ENDING	GROSS EARNINGS		OASDI	HI	FIT	SIT
					YEAR TO DATE			

CODE	DEDUCTIONS
	445.12
	NET PAY ↑

RETAIN THIS STUB
IT IS A STATEMENT OF YOUR
EARNINGS AND DEDUCTIONS

Palmero Maintenance

A wooden ship's steering wheel with a brass hub, positioned in the background. The wheel is made of polished wood and has several spokes radiating from the center. The text "Back to Sea" is overlaid on the wheel in a large, bold, black font.

Back to Sea

Psychology

Literature Review
Survey Development

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

Statistics

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