Math in the Workplace
A Miami Expedition
Gator Girls Gone Wild

Columbia College
Applied Math in the Workplace
Project Overview

- Revise Problem Solving Module
- Design Process to Identify and Serve Vocational Education Students
- Develop Hybrid Course targeting Auto Technology, Business Administration and Culinary Arts Programs
Problem Solving Module
&
Infused Instruction

• Pilot - Payroll Accounting Fall 2007
• Extend to Child Development Administration Spring 2008
• Integrate Problem Solving Module into all Vocational Programs
Identify and Serve Students

• Contextual Assessments
  – Beginning Level Courses within Programs
  – First Two Weeks of Semester
• Faculty Recommendations
  – Applied Math in the Workplace Hybrid Course
  – Contextual Instruction and Practice
Hybrid Course Description

• Late Start - 2 or 3 weeks into semester
• Short Course - 6 to 8 weeks
• Hybrid
  – Online component 24/7
  – Face to face Saturday
• Contextual—Instruction and Practice
  – Content designed to match field of study
Online Classroom Design
Welcome Page
Sample Modules
Automotive Pre-Assessment

1. Q1 (Points: 1)
   A mechanic is trying to tighten a bolt with a 5/16 inch wrench, but the wrench is too small. Should he reach for a 3/8 inch wrench or a 1/4 inch as his next choice?
   - 1. 1/4 inch wrench
   - 2. 3/8 inch wrench

2. Q2 (Points: 1)
   To load test a battery, a mechanic must calculate how much current draw should be applied to the battery. To do this, he must triple the amp-hour rating of the battery. If the battery has a 55 amp-hour rating, what current draw should he apply?
   - 1. 165 Current Draw
   - 2. 120 Current Draw
   - 3. 155 Current Draw

3. Q3 (Points: 1)
   Many batteries are not rated in amp-hours but rather in cold cranking amps. To calculate the current draw to apply to a battery, the mechanic must halve the cold cranking amps. If the battery has 425 cold cranking amps, how many current amps should the mechanic apply to the battery in order to load test it?
   - 1. 71.50

Your location: Home Page

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Blackboard Learning System: Windows Internet Explorer

Assessment - Windows Internet Explorer

Start date: January 20, 2008 9:06 AM

Questions: 3
Understanding the Concept of Gear Ratio

Understanding the concept of the gear ratio is easy if you understand the concept of the circumference of a circle. Keep in mind that the circumference of a circle is equal to the diameter of the circle multiplied by π (pi is equal to 3.14159...). Therefore, if you have a circle or a gear with a diameter of 1 inch, the circumference of that circle is 3.14159 inches.

The following figure shows how the circumference of a circle with a diameter of 1.27 inches is equal to a linear distance of 4 inches:

![Gear Ratio Image]
Sample Practice Problems

1. Q1-Practice Problem Set (Points: 1)
   The gear ratio for low gear in a transmission is 2 to 1. If gear ratio is calculated by dividing the number of teeth in the driven gear by the number of teeth in the drive gear and the driven gear has 27 teeth, how many teeth must the drive gear have to maintain a gear ratio of 3 to 1?

2. Q2-Practice Problem Set (Points: 1)
   To obtain higher gas mileage, a lean mixture of air to fuel must obtained. A ratio of 20 parts of air to 1 part of fuel is considered a very lean mixture. How many parts of fuel would have to be added to 60 parts of air to maintain this 20 to 1 ratio.

3. Q3-Practice Problem Set (Points: 1)
   If your car has a maximum capacity of 3.5 gallons in its cooling system and you want to fill it with a 50/50 mix of antifreeze and water, how many gallons of each would you need to add? The antifreeze bottle is marked in ounces, not gallons. How many ounces of antifreeze would you need to add? Note: there are 128 fl. ounces in 1 gallon.
expedition outcomes

• Acquire a Positive Mathitude
• Uncover the Utility of Mathematics
• Connect Math to the Workplace
• Tackle Quantitative Conundrums
• Capture Problem Solving Skills
• Land and Maintain a Job
WILD NIGHT LIFE PRESERVE