<u>**Lab Framework**</u>

Text: CORE

Unit number and title: Unit 1 – Learning Problem Solving Techniques

   Short Description: (Students will apply problem solving techniques to solve the over crowding issue at Hazen High School. Students will need to determine how many building portables to purchase to accommodate the increased enrollment at the school and what the cost to the district will be.)

Developed by: Mark Sabo

   Contact Information: (msabo@renton.wednet.edu)

Date: January 17, 2008

<u>**Lab Title**</u>
<u>**Over Crowding at Hazen**</u>

<u>**LAB PLAN**</u>

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

    Have students apply the four step problem-solving method they learned in Unit one to solve the over crowding at the high school.

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

    Know the four step method to solve problems.
    Calculate square footage.

    Goggle Earth

- **Materials List**

     Handout-blueprint of the school or satellite picture of the school.

- **GLEs (State Standards) addressed**

- (Math - **GLE's addressed:**

    (See page 9 of Frameworks for Applied Math for details)
    Read a problem and decide what is given and what is to be found.
    Develop a plan for solving problem. 1.1.7, 2.1, 2.1.1, 2.1.2, 2.1.3
    Carry out your plan to solve the problem. 2.2.1, 2.2.2, 2.2.3, 5.1.1
    Check the answer and decide if it is reasonable. 1.1.8, 3.2.1, 3.2.2, 4.1.1
)
    Reading: (Reading)
    Writing: (Writing)

- **Leadership Skills**

- **SCAN Skills/Workplace Skills**

- **Set-up information**

    None

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required)**
    Teacher has the option of allowing students to work together or individually.

- **Teacher Assessment of student learning** (scoring guide, rubric)
    Answers would be attached.
- **Summary of learning** (to be finished after student completes lab)
    -discuss real world application of learning from lab
    -opportunity for students to share/present learning

- **Optional activities**

- **Career Applications**
    Finance, accounting, facilities management, archticture, design

https://wa-appliedmath.org/

LAB TITLE: Over Crowding at our High School
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  Our high school has run out of classroom space. We're expecting an additional
  125 students. Each student needs 6 square feet. Each portable is 120 square feet.
  How many portables will the school need? (Hint - every student needs to be in a
  classroom. To equalize the number of students approximatly how many students
  will be in each portable. If each portable cost $28,000 what will be the cost to the
  school district?

  Students are provided a Google Earth picture of Hazen's property. They need to
  sketch the number of new portables onto the school property.

  How did your group decide where to put the new portables?

- **Grouping instructions and roles**
  Students would work in their pods with even number desks working as
  partners.

- **Procedures** – steps to follow/instructions
  - Understand the problem - write out the problem in a complete sentence.
  - Write out the plan to solve the problem.
  - Carry out the plan - show and label all your work.
  - Check the results for reasonableness.

- **Outcome instructions**
  On the Google Earth picture sketch in the number of portables you think Hazen
  will need to accommodate the increase in student enrollment. The drawings need
  to be on Hazen property. Where would you put all the new portables?

  - Be sure to include your cost projections.

- **Assessment instructions** (peer-teacher)
  Have students submit their cost projections and portable sketches to the
  teacher.

https://wa-appliedmath.org/

Lab Data Collection

Student: _____ **Date:** _____

Unit: <u>One</u>

Lab Title: Hazen's Population Explosion

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Calculations: Complete the given calculations to solve for an answer(s)

Summary Statement:

Other Assessment(s)