

## Lab Framework

**Text:**Cord

**Unit number and title:** Painting a house Unit 1

**Short Description:** A lab allowing the students to use problem solving techniques.

**Developed by:** Shane Bird

**Contact Information:** (Your contact information for clarification)

**Date:**6/24/09

### Lab Title

**Painting a House, More than Physical Labor**

## LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

- **Lab Objective**  
To use problem solving techniques to calculate materials needed and cost evaluation for profit.
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)  
Knowledge of multiplication, adding and subtracting, percents.
- **Vocabulary**  
Develop, Carry out, Understand
- **Materials List**  
Paper, Pencil, Calculator-A BIG eraser!
- **State Standards addressed**  
Math: A2.8.A, A2.8.B, A2.8.C  
Reading: (Reading)  
Writing: (Writing)
- **Leadership Skills**  
**Group Work-team work, Planning, Being able to delegate.**
- **SCAN Skills/Workplace Skills**
- **Set-up information**  
Hand outs or overhead with the problem and expectations of the lab.  
Make sure on overhead for daily activities that students are aware of what they need out on their table.
- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)
  1. Students choose group-of 3 (2 minutes)
  2. Students choose within their group a stenographer. (1 minute)
  3. Entire group works on calculations and bid. (could be 1 period or more)
  4. Group's work to complete bid/estimate to homeowner.
- **Teacher Assessment of student learning** (scoring guide, rubric)
  1. Collect work from students
  2. Class discussion on how they solved their problem-student volunteers.
- **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
  - 1. What are the real world applications for this lab? Discuss.

2. Discuss how working in a group is similar to working in a real life job, solving problems with co-workers.
3. Discuss the issue if a step is missed within the problem solving steps.

- **Optional activities**

- Could create a price list.

- Could use with unit 2, Estimation, estimating hours needed to complete project, and estimated costs for the job.

- **Career Applications**

- 1. All professions and job need problem solving techniques.

- 2. Can use the methods for chores at home, to planning on how to get your homework finished.

# Washington Applied Math Council

<https://wa-appliedmath.org/>

**LAB TITLE: Painting a house. More than physical labor**

**STUDENT INSTRUCTIONS:**

- **Statement of problem addressed by lab**

The group “Crew” has an opportunity to paint a house this summer and make some extra money. How much should you bid in order for your “Crew” to make a net profit of \$1500.00?

- **Grouping instructions and roles**

Class will have 2 minutes to choose a group of three. Each student is responsible to show work, with final bid turned in on 1 sheet of paper with all names written in upper left hand corner, and ALL participants work stapled to the front sheet.

- **Procedures – steps to follow/instructions**

The house to be painted is 40’x40’ on the 1<sup>st</sup> floor, and 40’x45’ on the upper level. The lower level only needs to be painted on three sides, as approx ¼ of the area is exposed concrete. There are 8 windows that measure 3’0”x3’0” and three doors that measure 3’0”x6’8”. These will NOT be painted. The paint comes in 5 gallon buckets, and each gallon covers approximately 400’, but you know from experience that it actually only covers approximately 300’. The cost per 5 gallons is \$100.00. You will need to purchase three rollers (\$5.00 each), 6 paint brushes (\$4.00 each), 15 naps for the rollers (\$2.00 each), tape that rolls out to 50’ (\$6.00 each), and plastic, to cover the windows, that will cover 100”, (\$15.00 each)

1. Your job as the “Crew” is to figure out how much paint you will need to paint both levels of the house/figure out total surface area to be painted.
2. How much will the paint cost?
3. How much plastic and tape will you need to cover the windows and doors, and how much will that cost?
4. How much will the paint brushes and rollers cost?
5. What will your total bid be, if you want to make a \$1500.00 profit, after expenses? Don’t forget to add 10% for the “unknown” expenses that may arise as your “Crew” works on painting this house.

- **Outcome instructions**

You should have one bid for the homeowner.

- **Assessment instructions (peer-teacher)**

Mr. B will be walking around and observing and helping as necessary. He will also be laughing at your calculations. We will work the problem as a class afterwards to check calculations.

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## Lab Data Collection

Student: \_\_\_\_\_ Date: \_\_\_\_\_

Unit: \_\_\_\_\_

Lab Title:

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)

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