

Lab Framework

Text: Cord

Unit number and title:

Short Description: Students prepare a bid to paint the classroom.

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Lab Title Painting Bid

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

Students learn the importance of estimating when preparing a bid.

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

Problem solving techniques, measuring skills

- **Materials List**

Paint store flyers or access to the internet to research paint supplies

Measuring tapes

Calculators

Student worksheet

- **State Standards addressed**

A1.6.B Make valid inferences and draw conclusions based on data.

A1.8.B Select and apply strategies to solve problems.

- **Leadership Skills**

Students work in groups to prepare a bid.

- **Set-up information**

As a class, discuss the following:

- How important is it to prepare a precise estimate?
- Does the size of the job have anything to do with how precise an estimate should be?
- What happens if the estimate is too low? Too high?
- Why is area an important mathematical concept for house painters?
- Who else might need to understand area, and use it in their work?

Review what you know about area.

The formula for area is:

area = length x width

This calculation tells you the total area to be painted. Now you've got to calculate the amount of materials -- be it paint or wallpaper -- needed to cover that area. To

calculate the amount of materials needed, divide the total area to be covered by the area the material will cover.

Usually, the packaging on the material will say how much area the product will cover. For example, a gallon of paint will cover 400 to 500 sq. ft.; while a single roll of wallpaper will cover about 25 sq. ft.

- **Lab organization** (-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)
Groups of 4 to 5 students.
- **Teacher Assessment of student learning** (scoring guide, rubric)
- **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**

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LAB TITLE: _____

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**

- **Grouping instructions and roles**

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

1. Get into groups of four and together prepare a bid to paint your classroom. You will need several paint store flyers, measuring tapes and calculators. Use the Student Worksheet below to guide your work.

2. Form a painting company, and give it a name. Measure the walls to calculate how many square feet you will have to paint. Discuss whether you will paint around the white boards, or take them off. Do you need to subtract the space taken up by windows and doors? Is it necessary to get that fussy when preparing an estimate? Does the size of the job have anything to do with how precise your estimate should be?

3. How many gallons of paint will you need? (Note that one gallon of paint will cover 400-500 square feet of wall space.) What supplies will you need, and how much will they cost? Determine how many painters will be painting, for how many hours, and at what wage.

4. What is your estimate? Is it reasonable? That is, will the estimate be low enough so you'll get the job, but high enough to give you some profit?

5. Prepare the estimate and submit it to your teacher.

- **Outcome instructions**

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

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Student Worksheet

Name of Paint Company:

Partners:

Items to be considered:

Area of walls to be painted:

Number of gallons of paint required:

Cost of paint:

Estimated cost of painting supplies
(rollers, brushes, pans, drop cloth, clean-up):

Number of painters on the job:

Number of hours to complete job:

Hourly wage/painter:

Total wages for painters:

Profit that goes into the company (include possible overruns):

Wages + paint + supplies + profit:

FINAL BID FOR THE JOB:

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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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