

Lab Framework

Text: CORD

Unit number and title: Unit 15—Using Formulas to Solve Problems

Short Description: Teach students to use proper formulas to bid a paint job.

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Lab Title Paint Lab

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

Teach students to recognize the importance of identifying proper formulas to use for a specific job.

- **Statement of pre-requisite skills needed:** You will need an understanding area, perimeter, and estimation.

- **Vocabulary**

Surface area, literal numbers, mathematical expression, unknown, variables

- **Materials List**

Sheet of paper, pen, graph paper

- **State Standards addressed**

Math:

- A1.1.A Select and justify functions and equations to model and solve problems.
- A1.1.B Solve problems that can be represented by linear functions, equations, and inequalities.
- A1.2.B Recognize the multiple uses of variables, determine all possible values of variables that satisfy prescribed conditions, and evaluate algebraic expressions that involve variables.

Reading:

- 1.3 Build vocabulary through wide reading
- 2.1 Demonstrate evidence of reading comprehension.
- 2.1.4 Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge.
- 3.3.1 Apply appropriate reading strategies for interpreting technical and non-technical documents used in job-related settings.
- 1.2 Use vocabulary (word meaning) strategies to comprehend text.
- 1.2.2 Apply strategies to comprehend words and ideas.

Writing:

- 1.2 Use style appropriate to the audience and purpose; use voice, word choice, and sentence fluency for intended style and audience
- 1.3 Apply writing convention; know and apply correct spelling, grammar, sentence structure, punctuation, and capitalization
- 2.1 Write for different audiences.
- 2.2 Write for different purposes, such as telling stories, presenting analytical responses to literature, persuading, conveying technical information, completing a team project, and explaining concepts and procedures.

- **Leadership Skills**

- 1.3 The student will demonstrate oral, interpersonal, written, and electronic communication and presentation skills and understand how to apply those skills.
- 1.4 The student will be involved in activities that require applying theory, problem-solving, and using critical and creative thinking skills while understanding outcomes of related decisions.
- 1.5 The student will demonstrate self-advocacy skills by achieving planned, individual goals.
- 1.6 The student will conduct self in a professional manner in practical career applications, organizational forums, and decision-making bodies.

- **Set-up information**

This should take about one 50 min period to go collect the data for their measurements. Review information about ways to estimate lengths of walls and heights of ceilings. They will get into groups of 2-3 by random selection.

- **Lab organization**

Each group will get a take the opportunity to go out and collect data.

- **Teacher Assessment of student learning** (scoring guide, rubric)

They will turn in the lab sheet with data.

- **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

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LAB TITLE: Painting Estimate

STUDENT INSTRUCTIONS:

You are a painter during the summer and you have been hired by the school district to Paint 3 different rooms—either interior or exterior. You are to determine the following for each job. – **ONLY WRITE YOUR ANSWERS ON THE RIGHT SIDE OF THE LINES**

1. Surface area of what needs to be painted – exclude doors and windows.
2. Draw a sketch of each job with labels.
3. Determine how many gallons of paint you need.(1 gal covers 350 sq. feet)
4. Select a brand and collect info to support your decision.
5. Upon brand selection, shop for a vendor to buy it from(internet) and get a price.
6. Include primer and paint in purchase.

On the back of each job sheet, produce a sketch of each job with estimated measurements.

PRE-QUESTIONS

How much do you expect each job to cost?

What do you see as a major challenge?

Where can you find direction besides the teacher?

RECAP:

What did you see as a major challenge?

What was the total cost of all 3 jobs and how close were you?

Why is it important to be as accurate as possible?

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Write-up for Job 1

ONLY WRITE YOUR ANSWERS ON THE LEFT SIDE OF THE LINES

Draw the sketch on the back!

1. Describe how you determined the measurements for your job.

2. How many gallons of paint and primer do you need for your job?

3. What brand of paint are you going to use and why?

4. Where will you buy the paint and what is the cost?

5. What will the total cost of paint be for the job?

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Write-up for Job 2

ONLY WRITE YOUR ANSWERS ON THE LEFT SIDE OF THE LINES

Draw the sketch on the back!

1. Describe how you determined the measurements for your job.
2. How many gallons of paint and primer do you need for your job?
3. What brand of paint are you going to use and why?
4. Where will you buy the paint and what is the cost?
5. What will the total cost of paint be for the job?

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Write-up for Job 3

ONLY WRITE YOUR ANSWERS ON THE LEFT SIDE OF THE LINES

Draw the sketch on the back!

1. Describe how you determined the measurements for your job.

2. How many gallons of paint and primer do you need for your job?

3. What brand of paint are you going to use and why?

4. Where will you buy the paint and what is the cost?

5. What will the total cost of paint be for the job?

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Final Component

Accuracy Level

Have students go back with tape measure and get an accurate measurement of the building. If the room is too high for them to measure, you get that ahead of time and give it to them. Have them repeat the lab with the accurate measurements and compare their numbers at the end of the lab. There are reflection questions on the first page to answer.

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