

Lab Framework

AMME

Unit #10 Sidewalk development for the Soccer Shed

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Lab Title

Concrete Estimation & Construction

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Short Description: Students will complete all the calculations necessary to order materials and estimate costs for a cobblestone sidewalk outside a newly constructed home.

LAB PLAN

Lab Objective

Students will figure cost of materials based on area of planned coverage.

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

Students must be familiar with Area calculations for various geometric shapes. Students must also understand how to calculate cost based on Area and linear measure.

New Vocabulary

Concrete Construction Vocabulary

Materials List

Copy of plan layout for the walkway and instructions
Calculator

GLEs addressed

Math: (Math)

Reading: (Reading)

Writing: (Writing)

Leadership 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

1.2 The student will communicate, participate, and advocate effectively in pairs, small groups, teams and large groups in order to reach common goals.

SCAN Skills

Writing

A. Communicate thoughts, ideas, information, and messages in writing

B. Records information completely and accurately

Arithmetic

A. Performs basic computations

D. Uses tables, graphs, diagrams, and charts to obtain or convey quantities of information

Mathematics

A. Approaches practical problems by choosing appropriately from a variety of mathematical techniques.

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Speaking

A. Organizes ideas and communicates oral messages appropriate to listeners and situations.

B. Participates in conversation, discussion, and group presentations.

Thinking skills

Reasoning

B. Uses logic to draw conclusions from available information, extracts rules or principles from a set of objects or written text.

Set-up information

Handout the Plan diagram and instruction sheet. Go over the instructions with the students and explain the diagram and how to read it. Go over concepts such as scale, area, and introduce volume.

Lab organization(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)

This lab can be done individually or in small groups (probably no larger than three students to a group). It should take one full class period.

Teacher Assessment of student learning (scoring guide, rubric)

Scoring will be based on successful completion of the lab worksheet.

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

Students could adapt this to a similar real world problem involving the planning of such an endeavor for themselves. They would have to draw their own plans in that case.

Career Applications

Using area calculations to determine cost of materials is common in most trades such as landscaping, fabricating, construction and design. Interpreting and drawing diagrams to represent planned work is also quite common and useful in the trades.

LAB TITLE: Concrete Estimation & Construction

STUDENT INSTRUCTIONS:

Statement of problem addressed by lab

The 10x12 Shed we have constructed this term in Woods Construction Class will need a Sidewalk up to it to avoid a muddy area for the Soccer teams to use effectively. First of all the Shed will need to be moved to its final location at the Intermediate School. We will the measure and layout the walkway.

Grouping instructions and roles

Divide yourself into a group of either one or two. You will need to calculate the cost of building this sidewalk as closely as possible.

Procedures – steps to follow/instructions

1. Carefully study the plan, material dimensions and material costs.
2. Calculate the area that is to be covered by each of the materials
 - a. The cobblestone
 - b. The brick
 - c. The gravel
 - d. The sand

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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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