

Lab Framework

Text:CORD Classic

Unit number and title:Unit 7 - Working with Shapes in Two Dimensions

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Lab Title How Much Paint?

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Short Description: (Students will measure the surface area of a wall, table, or door. Given a can of paint, the student will calculate how much paint is needed to cover the area.)

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

Students will calculate area and determine quantities

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

Students must be familiar with measurement techniques, converting inches to feet, lines and angles.

- **New Vocabulary**

area formula

glossy

semi-gloss

flat

- **Materials List**

1- 25 ft. tape measure per group

6-9 cans of paint in different sizes (gallon, quart, pint, spray) and in different finishes (primer, glossy, semi-gloss, flat or matte) (cans can be empty to full so long as label can be read)

- **GLEs addressed**

Math: 1.3. Understand and apply concepts and procedures from geometric sense—properties and relationships; locations and transformations.

4.1. Gather information—plan for collecting mathematical information; extract mathematical information.

5.3 Relate mathematical concepts and procedures to real-world situations—understand how mathematics is used in everyday life and in career settings.

Reading: 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.

Writing: 2.3.1 Uses a variety of forms/genres.

2.4.1 Produces documents used in a career setting.

3.2.2 Analyzes and selects language appropriate for specific audiences and purposes.

- **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 related to decisions**

- 2.1 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. Communicates thoughts, ideas, information and messages in writing

- B. Records information completely and accurately

- Arithmetic

- A. Performs basic computations

- B. Uses basic numerical concepts such as whole numbers and percentages in practical situations

- Mathematics

- B. Uses quantitative data to construct logical explanations for real world situations

- Speaking

- B. Participates in conversation, discussion, and group presentation

- **Set-up information**

- After handing out and going over the lab, have students measure an area such as a wall, a table, door or other flat surface. Once measurements are recorded students select a cans of paint.

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

- 1 class period (50 minutes to an hour)

- Students should be organized into teams of 3 to 4. Students decide who will do the measuring and who will do the recording. After measurements are taken students will select paint and determine how much paint is needed to cover their surfaces.

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

- Teacher observation

- Grading of worksheets

- **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**

- Painters: to determine quantity of paint needed

- Contractor: for calculating material to make a bid

Tilesetters: to measure surfaces to determine how many tiles needed

Fashion designer or seamstress: to determine how much fabric is needed for a pattern

Farmer: to determine seed coverage for crops

LAB TITLE: How Much Paint?

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
to calculate area and determine quantities

- **Grouping instructions and roles**
teams of 3 to 4
decide who will do the measuring and who will do the recording
take measurements of a flat surface such as a wall, door, or table
measure twice and record second measurement
select paint

- **Procedures – steps to follow/instructions**
- read the can label to determine how much paint is needed to cover your surface
- perform calculation on worksheet

- **Outcome instructions**
Complete the worksheet showing measurements, paint coverage information
and calculations for your surface

- **Assessment instructions (peer-teacher)**
Teacher observation - ongoing during class
Did students work cooperatively as a team
Were instructions followed
Did student complete the worksheet
Were calculation within a normal range

Lab Data Collection

Student: _____ **Date:** _____

Unit: __7 - Working with Shapes in Two Dimensions_____

Lab Title: How Much Paint?

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Measure area twice. Write down both measurements.

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

Based on the label directions how much paint is necessary to cover the surface area you measured?

Summary Statement:

Other Assessment(s)