

Lab Framework

Text: Cord Bridges

Unit number and title: Unit 12-Surface Area and Volume

Short Description: Finding the surface area of a box to wrap Christmas paper around the box

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Lab Title

Chapter 12 Wrapping Boxes

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

The student will use their knowledge of surface area to wrap some boxes.

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

Formula for surface area of a prism.

- **Materials List**

Boxes

Ruler

Scissors

Wrapping Paper

Graph Paper

- **State Standards addressed**

Math: G.6.C Apply formulas for surface area and volume of three-dimensional figures to solve problems.

- **Leadership Skills**

Group collaboration, defined roles, being a good listener

- **SCAN Skills/Workplace Skills**

Being able to use a formula to calculate the correct answer. Taking your results and applying them to a problem situation.

- **Set-up information**

Students should be working in groups of three or four. Each group will need their own box and wrapping paper.

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

Divide the students into groups of three or four. Have each group gather the materials needed for the lab.

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

The students will be graded on group work, visual observation, completion of lab and answering all the questions correctly.

- **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

- **Career Applications**

To be used when wrapping Christmas presents for your favorite teacher.

Student instructions:

- a. Choose a box to work with. Measure the length, width, and height and record it on a sheet of paper
- b. Use the formula for area of a rectangle to calculate the areas of each side of the box. Add these together to find the total surface area of the box and record it on your sheet of paper.
- c. Measure the width of the wrapping paper to find the maximum width piece you can cut.
- d. Use graph paper to sketch some possible nets for your box. Determine which one would be most efficient for your wrapping paper. You want to be able to cover the entire box by cutting off one piece of wrapping paper. You may have overlapping paper, but do not use more than one piece of wrapping paper to cover the box if possible.
- e. Cut off the size piece of wrapping paper you determined is needed. Measure the length and width of the piece. Calculate the area of the piece. Record this area on your sheet.
- f. How does the area of the piece of wrapping paper compare to the surface area you need to cover?
- g. Wrap the box. Were you successful in covering the entire surface of the box?
- h. Does calculating the surface area of the box help you to waste less wrapping paper? Explain why or why not.

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