

## Lab Framework

**Text: Applied Math**

**Unit number and title: Cord Unit 23 – Factoring**

**Short Description:** Your team uses factors to determine the area of a Window

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Lab Title

The Area of a Window

### LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

- **Lab Objective**

Works with binomials, trinomials and factoring

- **Statement of pre-requisite skills needed**

Proficiency in variable substitution and using exponents

- **Vocabulary**

binomials, trinomials and factoring, exponents

- **Materials List**

One stick and one 6” ruler for every team of two students

- **GLEs (State Standards) addressed**

Math:

EALR 1: The student understands and applies the concepts and procedures of mathematics.

COMPONENT 1.5: Understand and apply concepts and procedures from algebraic sense.

1.5.4 Use variables to write expressions, linear equations, and inequalities that represent situations involving rational numbers, whole number powers, and square roots. W

1.5.5 Apply algebraic properties to simplify expressions involving whole number exponents. W

Reading: 3.3.1 Apply appropriate reading strategies for interpreting technical and non-technical documents used in job-related settings 1.3.2 Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.

Writing: 2.2.1 Demonstrates understanding of different purposes for writing.

2.4.1 Produces documents used in a career setting.

- **Leadership Skills**

1.1 The student will demonstrate the ability to identify, organize, plan, and allocate resources. This means that the student is able to demonstrate allocating time, money, materials, space, and staff. A. *Time*. Select goal-relevant activities, rank them, allocate time, and prepare and follow schedules B. *Money*. Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives

- **SCAN Skills/Workplace Skills**
  - A. Performs basic computations B. Uses basic numerical concepts such as whole numbers and percentages in practical Situations A. Approaches practical problems by choosing appropriately from a variety of mathematical techniques
- **Set-up information**
  - Select the window in classroom to be measured.
- **Lab organization -Timeline required**
  - Teams of two students.
- **Teacher Assessment of student learning** (scoring guide, rubric)
  - Accuracy of final solution
- **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**
  - Add on calculations for buying purchasing drapes
- **Career Applications**
  - In retail, factors can be used to calculate the area of a window based on the number window covering it needs

# Washington Applied Math Council

<https://wa-appliedmath.org/>

**LAB TITLE: Measure a Window**

**STUDENT INSTRUCTIONS:**

- **Statement of problem addressed by lab**  
Measure a wall with only a stick and a ruler.
- **Grouping instructions and roles**  
Work in teams of two
- **Procedures** – steps to follow/instructions
  1. Measure in wall in “sticks”, using the stick. Record results.
  2. Measure any remainder using the 6” ruler. Record results.

	In sticks	Remainder in inches
Height of window		
Length of window		

3. Develop a trinomial.

Example:

$$\begin{aligned} &(\text{height}) * (\text{width}) \\ &(\# \text{ of sticks} + \text{inches}) * (\# \text{ of sticks} + \text{inches}) \\ &(16 \text{ sticks} + 4) * (7 \text{ sticks} + 3) \\ &112 \text{ sticks}^2 + 76 \text{ sticks} + 12 \end{aligned}$$

Your trinomial:

4. Measure the stick using the 6” ruler. \_\_\_\_\_
5. Solve your trinomial by substituting the actual value of the stick from step #4.
6. Convert your total square inches to square feet.

- **Outcome instructions**

- **Assessment instructions** (peer-teacher)  
The team with the closest answer wins

## 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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