

## Lab Framework

**Text:**Cord

**Unit number and title:** 1 Learning Problem-solving Techniques

**Short Description:** Gingerbread House Lab

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### Lab Title Gingerbread House

## LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

- **Lab Objective**  
Design and build a gingerbread house.
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)  
Understand how to find the area of squares, trapezoids and triangles.  
Convert percentages to decimals.
- **Vocabulary**  
Area  
Percentage
- **Materials List**  
Ruler  
Graph paper  
Big, white paper  
Tag board  
Calculator  
Gingerbread and frosting  
Kitchen facilities  
Decorations
- **GLEs (State Standards) addressed**

**Math:**

2.1.1	Formulate questions to be answered to solve a problem.
3.2.2	Apply understanding of complex information, including functional documents, to perform a task.
3.3.1	Apply appropriate reading strategies for interpreting technical and non-technical documents used in job-related settings.

**Reading:** 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:** 1.1.1 Analyzes and selects effective strategies for generating ideas and planning writing.

- **Leadership Skills**

Students are expected to help and mentor other students who are struggling on the project.

- 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

### **SCAN Skills/Workplace Skills**

#### **Writing**

- A. Communicates thoughts, ideas, information, and messages in writing
- B. Records information completely and accurately

#### **Arithmetic**

- A. performs basic computations

#### **Mathematics**

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

#### **Speaking**

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

#### **Thinking Skills - Reasoning**

- B. For example, uses logic to draw conclusions from available information, extracts rules or principles from a set objects or written text.

- **Set-up information**

Students need to be in their seat on time with a pencil and paper.

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

This lab will take 5 1-hour class periods. Students are working by themselves on this project.

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

I will use a scoring guide to grade their gingerbread houses.

- **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

Students will master how to floor, side and roof their home. The will problem solves how to pay for appropriate building materials for their gingerbread house.

- **Optional activities**

Students can add porches and driveways to their house.

- **Career Applications**

Students can relate this project to building industry and foodservice occupations.

**LAB TITLE: Gingerbread House**

**STUDENT INSTRUCTIONS:**

- **Statement of problem addressed by lab**
  - Design and build a gingerbread house.
- **Grouping instructions and roles**
  - You will be working by yourself.
- **Procedures – steps to follow/instructions**
  - Research the history of gingerbread. Write a one - page paper about the history of gingerbread.
  - Using a ruler design and draw your house on big white piece of paper. You must you have a least 3 different shapes for your house.
  - Transfer your design to graph paper. Scale down the house to 1/3 of the original size.
  - Draw your original size gingerbread house on tag board. Cut out the tag board. Assemble your gingerbread house.
  - Cook the gingerbread and assembly your house with frosting. The house pieces must fit together.
  - Decorate your house. Use material, which is consistent with the purpose. For example the roof could be made out of square material to look like shingles or shredded wheat to look like thatching. All surfaces need to be covered. The yard must be landscaped.
- **Outcome instructions**
  - Complete the “Cost for Building a House” worksheet.
  - Complete the house by the due date.
- **Assessment instructions (peer-teacher)**
  - Students will be graded with the following scoring sheet:
    - 50% - House pieces fit together
    - 25% - House uses at least 3 different shapes
    - 25% - Decorations are consistent with the purpose.

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## Lab Data Collection

Student: \_\_\_\_\_ Date: \_\_\_\_\_

**Unit: 1 Learning Problem-solving Techniques**

**Lab Title:** Gingerbread House Project

**Criteria:** Write the problem/objective in statement form

**Data Collection:** What is the history of gingerbread.

**Calculations:** Complete the attached “Costs for Building a House” worksheet.

**Summary Statement:**

**Other Assessment(s)**

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## Cost for Building a House

### Roofing

Your house requires a roof. Complete the following steps to calculate how much you will spend on your roof.

- Calculate the total area of your roof. If necessary refer to the formulas on the attached page. Show your work using words, numbers, and/or diagrams. Correctly label your answer.

Area of roof \_\_\_\_\_

- In construction, a waste allowance is added into assure there is enough material for the job. Calculate a 15% waste allowance. Then add the allowance to the roof's area. Show your work using words, numbers, and/or diagrams. Correctly label your answer.

Waste Allowance \_\_\_\_\_

Total Roof Area including waste \_\_\_\_\_

- Roofing material costs \$12.90 per bundle. One bundle covers  $33\frac{1}{3}$  sq. feet. Calculate how many bundles you will need to cover your roof. Calculate the cost to purchase complete bundles. Include a 9.2% sales tax. Show your work using words, numbers, and/or diagrams. Correctly label your answer.

Number of Bundles \_\_\_\_\_

Cost for Shingles \_\_\_\_\_

Sales Tax \_\_\_\_\_

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Total Cost to roof your house \_\_\_\_\_

## Siding

You now must side your house. The siding material for the walls of your house costs \$5.97 for an 8.25" x 12' plank. How much will it cost to side your house? Show your work using words, numbers, and/or diagrams. Correctly label your answer.

- Finding the surface area of the walls, minus the doors and windows.
- Calculating how many planks will be needed to cover the walls, allowing for 15% waste.
- Calculating the cost of the siding.
- Calculate a 9.2% sales tax and adding that to the cost.

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Total cost to side your house \_\_\_\_\_

### Flooring

Calculate the cost to put laminate flooring in your house. The package of laminate flooring will cover 23.89 sq. feet and costs \$41.40. Show your work using words, numbers, and/or diagrams. Correctly label your answer.

- Find the area of the floor.
- Calculate how many packages will be needed to cover the floor, allowing for 15% waste.
- Calculate a 9.2% sales tax and add that to the cost.

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Cost to floor your house \_\_\_\_\_

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