

Greenhouse Design

Unit Outline

1. Project Team Members: Nick Stollar, Curtis LaCoe
2. Title of Course: Horticulture Science I
3. Title of Unit or Project: Greenhouse Design
4. Approximate length of Unit or Project: 2 weeks
5. Brief description of the Unit or Project with an expected final outcome.

Students will work individually, or with partners, to develop a design for a greenhouse, and calculate space requirements, equipment needed and cost of operation. Student will then construct a scale model of the greenhouse.

6. Major Goals of Unit:

The student will be able to:

1. Match terms associated with greenhouses and greenhouse construction to their correct definitions.
2. List factors to be considered before building a greenhouse.
3. List legal and building requirements for greenhouse construction.
4. Match the different types of greenhouse designs to their correct illustrations.
5. Describe the different types of flooring used in greenhouses.
6. Select from a list, true statements concerning heating and cooling systems.
7. Select from a list true statements concerning drainage.
8. Select from a list true statements concerning bench types, materials and layout.
9. Discuss backup emergency systems.
10. List energy saving measures for greenhouses.
11. Discuss cold frames and hot beds.
12. Construct a scale model of a greenhouse

7. Sequence of balanced and integrated activities for students:

1. Students will be provided an industry catalog to select equipment and supplies needed to produce a poinsettia crop. Item descriptions, quantity and prices will be included in a worksheet to be completed.
2. Students will identify local zoning requirements for greenhouse construction. Local building codes will be reviewed for specific land use regulations.
3. Utility needs and cost analysis will be considered for energy efficient practices. Students will calculate energy requirements for evaporative cooler and heater in greenhouse.

4. Students will determine space requirements needed to grow a crop by accurately measuring our existing greenhouse. A worksheet will be provided to complete this assignment.
 5. Students will select a greenhouse design (floor plan), layout a scaled drawing, and actually construct a scaled model greenhouse using craft sticks or flexible material. A designed rubric scale (below) will be used to assess student accuracy for model layout and design
8. Checklist or rubric of assessment components for students:

Greenhouse Layout Rubric

Name _____ Date _____

Design Layout (40 points)	Points Possible	Points Earned
A. Properly Scaled Drawings	20	
B. Drawings Properly Labeled	10	
C. Neatness	10	
<hr/>		
Model Greenhouse Construction (60 points)		
D. Proper Dimensions	20	
E. Construction quality	20	
F. Overall design completion	20	
<hr/>		
Total		100

Note: If students work in pairs, consider adding assessment for teamwork skills, and communicating their work to others.

9. Specific Standards addressed in this Unit or Project:

<u>Ref. #</u>	<u>Name of Standard</u>	<u>Title of Individual Standard</u>
1.2.11A	PA-RWLS	Reading Critically in All Content Area
1.6.11E	PA-RWLS	Speaking and Listening
2.5.11A	PA-ASM	Mathematical Problem Solving and Communication
2.2.11A	PA-ASM	Computation and Estimation
3.6.12C	PA-ST	Technology Education

Note: Consider adding standards from SCANS on Decision Making, Problem Solving, and Teamwork.