GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

ACCT—ARCHITECTURAL DRAWING

PATHWAY: Architectural Drawing & Design

COURSE: Architectural Drawing & Design I

UNIT 8: Roof Designs

INTRODUCTION

Annotation:

Students will understand roof systems.

Grade(s):

x	9th
x	10th
x	11th
x	12th

Time: 2 hrs

Author: Connie Highnote

Additional Author(s):

Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards:

ACT-ADDI-3 Students will demonstrate knowledge of roof systems, terminology, style, and construction.

a. Draw various styles of roof systems.

GPS Academic Standards:

MMIP4. Students will make connections among mathematical ideas and to those in other disciplines.

ELA9RL5. The student understands and acquires new vocabulary and uses it correctly in reading and writing.

National / Local Standards / Industry / ISTE:

ADDA, Advanced CAD skills

UNDERSTANDINGS & GOALS

Enduring Understandings:

Students should understand the concept of multi-view drawing and that a roof plan is a top view of a house. The appearance of the house is greatly affected by the design of the roof. The design of the roof should be considered when laying out the floor plan. There are several styles of roofs and several material types.

Essential Questions:

- Why are there so many roof styles?
- What is the most popular roof style used today and why?
- What determines which roof style should be used on a home?
- What is the purpose of drawing a roof plan? Is a roof plan necessary?

Knowledge from this Unit:

- Students will learn to draw a roof plan.
- Students will learn the different styles of roofs.
- Students will learn the different terms used to describe roofing systems.

Skills from this Unit:

- Students will be able to prepare a roof plan given a floor plan.
- Students will be able to design a roof for a home.

ASSESSMENT(S)

Assessment Method Type:

- ____ Pre-test
- _x_ Objective assessment - multiple-choice, true- false, etc.
  - _x_ Quizzes/Tests
  - __ Unit test
- ____ Group project
- ____ Individual project
- _x_ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
  - _x_ Self-check rubrics
  - __ Self-check during writing/planning process
  - __ Journal reflections on concepts, personal experiences and impact on one's life
  - __ Reflect on evaluations of work from teachers, business partners, and competition judges
  - __ Academic prompts
  - __ Practice quizzes/tests
- ____ Subjective assessment/Informal observations
  - __ Essay tests
  - __ Observe students working with partners
  - __ Observe students role playing
- ____ Peer-assessment
  - __ Peer editing & commentary of products/projects/presentations using rubrics
  - __ Peer editing and/or critiquing
- ____ Dialogue and Discussion
  - __ Student/teacher conferences
  - _ _ Partner and small group discussions
  - __ Whole group discussions
  - __ Interaction with/feedback from community members/speakers and business partners
- ____ Constructed Responses
  - __ Chart good reading/writing/listening/speaking habits
  - __ Application of skills to real-life situations/scenarios
- _x_ Post-test

Assessment(s) Title:

Roof Styles

Roof Test

Assessment(s) Description/Directions:

After reviewing the process of creating a roof plan as a group, students will obtain the proper tools and draft a roof plan.

Attachments for Assessment(s):

Roof Styles.doc

Roof test.doc

Roof test key

LEARNING EXPERIENCES

Sequence of Instruction

1. **Identify the Standards. Standards should be posted in the classroom for each lesson.**

   ACT-ADDI-3 Students will demonstrate knowledge of roof systems, terminology, style, and construction.

   a. Draw various styles of roof systems.

2. **Review Essential Questions.**

   - Why are there so many roof styles?
   - What is the most popular roof style used today and why?
   - What determines which roof style should be used on a home?
   - What is the purpose of drawing a roof plan?
   - Is a roof plan necessary?

3. **Identify and review the unit vocabulary.**

Pitch	Hip roof	Sheathing
Flat roof	Dutch roof	Ridge board
Shed roof	Mansard roof	Rafter
Gable roof	Parapet	Dormer
A-frame roof	Fascia	Valley
Gambrel roof	Roof vent	Square

4. **Interest approach – Mental set**

Roof plans are important because they show structures are protected from the elements. A roof plan is also a good tool to use when illustrating how to draft exterior elevations.
Even though architectural software will design the roof automatically, it is important to understand roofing systems in order to manipulate the software to achieve the desired outcome. The roof on a home greatly affects the overall appearance.

Lesson 1

Discussion

1. Give students Roof Styles.doc and discuss the different roof styles and roofing materials.
2. Using a text, have students list the advantages and disadvantages of each roof style and material.
3. Have them look at pictures of homes on the internet or in magazines and identify the many roof styles and materials.

Lesson 2

Discussion

1. Give the vocabulary list, have students create an index cards for each term. One side is to include the term and the other a definition and illustration.
2. Have students design a matching assessment using 10 of the terms.

Lesson 3

Discussion

Explain the steps used to create a roof plan and have them posted in the lab.

1. Trace the outside of the exterior walls of a floor plan with a hidden line.
2. Draw the overhang 12” beyond the walls as an object line.
3. Draw the ridge and valley lines using object lines.

Lesson 4

Discussion

Explain the steps used to create a roof plan and have them posted in the lab.

1. Using CAD open a floor plan file.
2. Create a separate layer for the roof plan.
3. Trace the outside of the exterior walls with a hidden line.
4. Draw the overhang 12” beyond the walls as an object line.
5. Draw the ridge and valley lines using object lines.

Attachments for Learning Experiences:

Notes & Reflections:

CULMINATING PERFORMANCE TASK

Culminating Unit Performance Task Title:

Design a Home

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

Given the client summary and rubric.doc, have students design a roof plan.

Attachments for Culminating Performance Task:

Client summary and rubric.doc

UNIT RESOURCES

Web Resources:

http://www.autodesk.com/edcommunity

http://www.youtube.com/ and type Autodesk Revit in the search

Attachment(s):

Materials & Equipment:

What 21st Century Technology was used in this unit:

	Slide Show Software	x	Graphing Software		Audio File(s)
	Interactive Whiteboard		Calculator		Graphic Organizer
	Student Response System		Desktop Publishing		Image File(s)
	Web Design Software		Blog		Video
	Animation Software		Wiki		Electronic Game or Puzzle Maker
	Email		Website		