GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

ACCT—ARCHITECTURAL DRAWING

PATHWAY: Architectural Drawing & Design

COURSE: Architectural Drawing & Design I

UNIT 2: Design Process

INTRODUCTION

Annotation:

Students will describe the steps in the design process.

Grade(s):

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

Time:

5 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-1 Students will identify components related to the design process.

b. Describe the steps in the design process.
d. Identify the proper use of site analysis.

GPS Academic Standards:

SCSh9. Students will enhance reading in all curriculum areas.
ELA9RL5. The student understands and acquires new vocabulary and uses it correctly in reading and writing.
ELA11LSV1. The student participates in student-to-teacher, student-to-student, and group verbal interactions.

National / Local Standards / Industry / ISTE:

UNDERSTANDINGS & GOALS

Enduring Understandings:

Residential dwellings are designed using a systematic approach that identifies and meets the needs of the individuals that live in them. These designs must also meet site limitations and building codes and local ordinances. Consideration must also be made for availability of building materials and the impact on the environment. Homes are designed to be built. Where they are built is a very important factor in how they will look and the building materials that need to be used. Homes should be designed to compliment their natural surroundings. The home's site should be one of the major considerations in designing a structure. Who will live in the home is another major consideration.

Essential Questions:

How are houses designed? What is more important, function or appeal? What makes the perfect home? How do you design a home that meets the needs of everyone? When designing a home, why does it matter where it will be built? What are site considerations? What determines where a house should be built? Why can't a house be built just anywhere?

Knowledge from this Unit:

Students will be able to list and use the steps to design a house: client and site analysis, bubble diagram, sketch, layout, working drawings. Students will understand how site analysis will affect the design of a home. Students will understand terrain, view, solar, wind and sound orientation. Students will be able to list and identify the 3 areas of a house: social, service and private.

Skills from this Unit:

Students will create a diagram describing the steps of the design process. Students will be able to create a survey used to gather informaiton from a client. Students will be able to analyze a site to determine the best house design for the land. Students will be able to sketch a bubble diagram to describe the relationship of rooms. Using a bubble diagram, students will prepare a sketch of a floor plan.

ASSESSMENT(S)

Assessment Method Type:

- ____ Pre-test
- x Objective assessment - multiple-choice, true- false, etc.
  - __ Quizzes/Tests
  - _x_ Unit test
- ____ Group project
- ____ Individual project
- x Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
  - __ Self-check rubrics
  - _x_ 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
- x Subjective assessment/Informal observations
  - __ Essay tests
  - _x _ 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
- x Dialogue and Discussion
  - __ Student/teacher conferences
  - _x _ Partner and small group discussions
  - _x _ 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
- ____ Post-test

Assessment(s) Title:

Design Process Test

Assessment(s) Description/Directions:

Given sets of house plans, describe the ideal family for the home. Write a list of questions that will facilitate understanding the needs of the client. Locate planning checklists in textbooks or on the internet to evaluate the tools designers use to assess the needs of clients. Given a description of a family and their housing needs, create a bubble diagram that illustrates the arrangement of the living areas.

Attachments for Assessment(s):

Design Process Test.doc

LEARNING EXPERIENCES

Sequence of Instruction

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

ACT-ADDI-1 Students will identify components related to the design process.

b. Describe the steps in the design process.

d. Identify the proper use of site analysis.

2. Review Essential Questions.

How are houses designed?
What is more important, function or appeal?
What makes the perfect home?
How do you design a home that meets the needs of everyone?

3. Identify and review the unit vocabulary.

Analysis	Bubble diagram	Southern exposure
Want	Open plan	Terrain
Need	Closed plan	View
Service area	Traffic flow	Solar
Private area	Contour lines	Wind orientation
Social area	Property lines	Sound orientation
Site	Building envelope	

4. Interest approach – Mental set

Have students write a description of their family's living needs. Have students distinguish between their family's needs and wants. Have students sketch a bubble diagram to show the room relationships of the house they live in. Have students determine if the plan is open or closed.

Lesson 1 Design Process

Discussion- It is best to use a systematic approach to solve a problem. Review the process used in conducting a scientific experiment. This is also true when designing a residential structure. Let's create a formula to use to design a home.

1. Assign students a partner.
2. Have students brainstorm a sequence of events to design a home.
3. Start the process as a whole group to lead them in the right direction.
4. Have students share their process with the class.
5. Distribute the design flow chart, Design Process Diagram.doc
6. Ask for student volunteers to read the steps in the process.
7. Discuss the advantages of using a process.

Lesson 2 Site Analysis

Discussion- The location of the house determines several things about the design. It can determine the shape, the foundation type and where the windows should be located.

1. Give students a copy of Site Plan.doc or a teacher-selected site plan located in an area zoned for residential dwellings. Give students a list of elements typically found on a site plan and have them study the drawing and identify those elements.

   Given a site plan, have students identify the following aspects:

   a. Name of subdivision, district or section, county or city and state
   b. North arrow
   c. Scale of plat
   d. Names and widths of streets
   e. Bearings of street lines and lot lines
   f. Lot dimensions and numbers
   g. Description of easements, setbacks, utilities and covenants
   h. References to adjoining property
   i. Certification and accuracy of plat
   j. Contour lines
   k. Lake
   l. Additional items of interest

2. Point out the different elements and explain how they determine where the structure can be located. Point out the contour lines and explain how they describe the slope which determines the type of foundation required. Explain that only a percentage of the lot can be used to build the home.

Lesson 3 Client Survey

Discussion- In order to determine the housing needs of a family, you must know what questions to ask and who to ask. Ask students if they watch the television show where a group goes in and completely rebuilds a family's home? At the beginning of the show each family member is interviewed and information is gathered to determine their living needs, special interests and personality. The way the family lives is what determines the spaces needed.

1. Create a survey that can be used to interview a family to determine their housing needs. Determine what is most important to each member of the family. Make sure you keep in mind that there will be a budget and site limitations.
2. Use this survey to interview a client outside of class. Add questions if you see that the original list is not enough.
3. Use the answers to write an analysis of what is required to adequately provide a home to meet the needs of the client.

Lesson 4 Identify Service, Social and Private Areas of the Home

Discussion- Once you have analyzed the site and the needs of the client, it is time to create a bubble diagram of the home. Before we start laying out the house, we must divide the rooms into zones. Rooms in the home can be divided into three areas: social, service and private.

1. Show the PowerPoint Homes Have Zones explaining the three zones of the house.
2. Demonstrate using a white board or projection device how an existing floor plan is divided into zones.
3. Distribute floor plans to students and have them color code the three zones.
4. Have students check each other's work.

Lesson 4 Create a Bubble Diagram

Discussion- Remembering what we have learned about the zones in the house, let's create a bubble diagram using the site and client analysis. Using bubbles allows you to be more creative and does not restrict you to creating boxes.

1. Demonstrate to the class how to create a bubble diagram given a list of client needs and a site plan.
2. Have students create a bubble diagram based on a site and client analysis.
3. Ask students to color code the bubbles to show that they have kept the zones in tact.

Attachments for Learning Experiences:

Client Summary.doc
Design Process Diagram.doc
House Orientation.ppt
Homes Have Zones.ppt
Site Plan.doc

Notes & Reflections:

CULMINATING PERFORMANCE TASK (Optional)

Culminating Unit Performance Task Title:

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

Attachments for Culminating Performance Task:

UNIT RESOURCES

Web Resources:

Attachment(s):

Materials & Equipment:

What 21st Century Technology was used in this unit:

	Slide Show Software		Graphing Software		Audio File(s)
	Interactive Whiteboard		Calculator	x	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		