

INVESTIGATING THE DESIGN PROCESS

GRADE: 6-8

TIME: 3-5, 45 minute sessions

What is it like to think like an architect? What process do architects use to generate and test their designs? After learning about Frank Lloyd Wright and one of his Chicago clients, Frederick C. Robie, and studying Wright's designs for the Robie House (1910), participants will imagine, plan, and build a 3-dimensional model of a house for their own client. Participants will consider the design process and experience how problem-solvers from a variety of backgrounds use similar processes every day to identify and solve challenging problems.

INTEGRATED SUBJECTS: Visual Art, Science, Math, ELA

**This lesson was part of the Robie House Teacher Education Project supported by the Terra Foundation for American Art.*

OBJECTIVES

MATERIALS | RESOURCES

Sketchbooks or scrap paper
Sheets of ½ inch graph paper
Lightweight cardboard (model base & walls)
Low-tack masking tape.
Elmer's glue
Scissors
Pencils
Rulers
Images of the Frederick C. Robie House
Client cards

1. Increase awareness of Chicago architecture and Frank Lloyd Wright's work.
2. Explore the first uniquely American style of architecture, the Prairie style.
3. Participate in the design process by designing and building a model.
4. Think creatively to solve problems and address specific design issues.
5. Explore the relationship between architect and client.

ESSENTIAL QUESTIONS

1. What steps do you take when you design something?
2. When designing for someone else, how do your own ideas and imagination fit into your work?
3. What strategies can you use to solve design problems you face?

LESSON PROCEDURE

Session One - Wright and Robie

EXPLORE

15 minutes

- Introduce Frank Lloyd Wright as an American designer and architect who pioneered the first uniquely American style of architecture, the Prairie style. Background information available at: <https://www.teachingbydesign.org/about/prairie-style/>
- Present the Frederick C. Robie House and its significance as the quintessential example of the Prairie style. (<https://www.teachingbydesign.org/about/robie-house/>)
- Allow participants a few moments to look at Robie's design and then begin a discussion about what they observe. As participants provide observations, begin forming a group definition of the Prairie style. Images are available at: <https://www.teachingbydesign.org/multimedia/>

ENGAGE

30 minutes

- Ask participants to consider what led to the unique design of the Robie House. Was the design because of certain needs the Robie family had? Was it because Frank Lloyd Wright had his own design ideas? Were there other influences?
- Provide further information about the Robie House.
- Define and compare the roles of architect, contractor, and client. Discuss ways each role interacts and communicates with one another when designing a house (identifying needs, looking at physical restrictions, sharing and editing ideas, sketching examples, and creating floor plans and scale models).
- Identify and brainstorm a list for some of the needs and wants that Mr. Robie had for his new house.
 - 3 car garage
 - Play yard and play room for his children
 - Main level guest room for his mother
 - Servants quarters
 - New and innovative technology
- Further investigate the Robie House design by exploring its floor plan. Discuss what a floor plan is and point out key features. Images and Robie House floor plans are available at: <https://www.teachingbydesign.org/multimedia/>
- Allow time for participants to ask questions and identify the various characteristics of the house in plan.
- Then, have participants consider the floor plans themselves and have them turn their attention to the different symbols and markings they can find. Consider: Which symbols represent the windows and doors? Where are the public/private spaces in the house? Where would visitors go, and where would the family hang out? Why might certain rooms be grouped in certain ways? For example, why might Frank Lloyd Wright put the kitchen so close to the dining room with the servants' quarters so close to both rooms? How do the designs fit the needs and wants of the Robie family?

LESSON PROCEDURE

Session Two - The Design Process

EXPLORE

15 minutes

- **Identify the steps of the design process, and post them for participant reference throughout the rest of the unit. Use Robie House as an example to identify possible ways Frank Lloyd Wright or other architects with a similar task might have worked through the design process:**

Understand the Challenge: Understand what the client needs and wants and any other physical constraints (lot size, a bad view, noisy neighbors, etc.).

Research & Brainstorm: Look at and propose several different solutions, research how other homes are designed, and think through and sketch out more than one original solution.

Design/Test design/Get feedback: Choose the best solution and begin a rough draft of the plan for the house based on client needs. Then, share the design with peers and the 'client' to receive feedback.

Re-design/Tweak design/Build the Design: Make changes to the design based on client and peer feedback, and construct a model from the final plan.

Present final design: In your class, school, or community, hold a formal presentation where participants share their final models and are prepared to explain how they came to their final designs.

DESIGN

30 minutes

- **Distribute a client card (available at: <https://www.teachingbydesign.org/multimedia/>) and present the design challenge:** Create a unique floor plan that fulfills the needs of your client and build a scale model.
- **Have participants work out at least three solutions using a bubble diagram. If possible, provide time for participants to research unique design solutions. Remind participants to consider:** Where are the public/private spaces in the house? Where would visitors go, and where would the family hang out? Should the rooms be grouped in a specific way? How do the designs fit the needs and wants of the client? What is a unique design aspect you would like to include in the design?

LESSON PROCEDURE

Session Three-Five - Build

DESIGN

Times may vary

- Have each participant choose their most successful design, and translate it from a bubble diagram to a floor plan. Participants can sketch their design on a sheet of ½ inch graph paper. Remind participants to not forget the doors and windows.
- Allow time for participants to share their designs in pairs or small groups to gather feedback.
- Based on the feedback they received, have participants make any necessary revisions to their design.
- Adhere each piece of ½ inch graph paper with the final design to a cardboard base.
- To build their model, have participants construct the exterior and interior walls by cutting and gluing strips of lightweight cardboard along their floor plan lines. Make sure participants cut openings for windows and doors.

CRITIQUE & INTERPRET

20 minutes

- Have participants share their designs and the various needs of their client. Ask them to point out some of the unique design challenges they faced. Ask: What led to your design? How did you decide which spaces to include in your floor plan? How did you use your imagination? What was the biggest challenge you encountered? What steps did you take to solve it? Can students imagine using the steps of the design process outside of this assignment?