



FRANK  
LLOYD  
WRIGHT  
TRUST

# 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 (included below) 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?

# CLIENT CARDS

The following cards feature twelve clients with specific needs and design challenges. They can be used and adapted for any design or building lesson to challenge participants with real-world design scenarios. For an additional challenge, the client cards can also be paired with site cards which provide environmental and landscape descriptions. To find lessons that pair with these clients explore build and design in the Lesson Plan section of the Teaching by Design website. And don't forget to check out how Frank Lloyd Wright solved some of the same design challenges!

# CLIENT ONE

## NEEDS

- 3 Bedrooms
- Garage
- Large public space
- Play space

## WANTS

- Lots of windows
- Connection to nature

# DESCRIPTION

**BUILDING TYPE:** House

This family of four includes two adults, a boy (age 6), and a girl (age 2).

Client One is looking for a private and safe home where their children can play inside and outdoors. This family loves to spend their time outside and requests that the house be designed with a connection to nature and include many windows. In addition, they often have friends and family visit, and ask for large, public spaces to have parties and dinners. Finally, the father owns a business where he builds cars and asks for a space at home where he can work and store them.

# CLIENT TWO

## NEEDS

- 3 Bedrooms
- 2 Offices/workspaces
- 1 Private entrance
- 1 Public entrance

## WANTS

- Space for their son & 2 dogs

# DESCRIPTION

**BUILDING TYPE:** House

This family of three includes two adults and a boy (age 5).

Client Two is looking for a unique home where they can work and raise their young son. Both fathers have home businesses and need separate offices or workspaces. One is a designer and the other is a veterinarian. They also would like 2 entrances, one for their family and the other for clients. In addition to their son, the family also has two medium sized dogs that like to run around. Client Two also has a large extended family that visits often, and requests an extra bedroom for them to use.

# CLIENT THREE

## NEEDS

2 Bedrooms  
Study Space

## WANTS

vegetable garden  
Freenhouse or garden shed  
Space for books

# DESCRIPTION

**BUILDING TYPE:** House

This family of three includes two elderly adults and a girl (age 12).

Client Three would like a home that is large enough to include a study space for their granddaughter, but small enough that they can continue to live in as they age. While they do not want a large house or yard to care for, they do enjoy gardening and grow vegetables each summer. They also like to read together and have a large library of books. This family would also like the interior spaces to feel open and be full of light.

# CLIENT FOUR

## NEEDS

3 Bedrooms  
Wheelchair accessible  
Large dining area

## WANTS

Open floor plan  
Separation of public & private spaces

# DESCRIPTION

**BUILDING TYPE:** House

This family of four includes two adults and a girl (age 11) and a girl (age 8).

Client Four has a parent who uses a wheelchair and requires space to be able to easily move around. Family dinners are especially important and so a large dining area where they can all sit together is required. The family would also like all the private spaces to be near one another and separate from the public areas of the home.

# CLIENT FIVE

## NEEDS

3 Bedrooms  
Open den/living room  
View of backyard from the kitchen

## WANTS

A large, quiet master bedroom  
Storage space

# DESCRIPTION

**BUILDING TYPE:** House

This family of three includes one adult and a boy (age 4) and a girl (age 6).

Client Five would like a house design that helps to keep things organized and has plenty of storage space. With two young children, a large open living room for the family to play inside together is important. Likewise, a view of the backyard from the kitchen is important to help watch the children play outdoors. Client Five would also like a large master bedroom where they can relax each night.

# CLIENT SIX

## NEEDS

5 bedrooms  
Large kitchen  
Large Living room

## WANTS

A laundry room  
Storage

# DESCRIPTION

**BUILDING TYPE:** House

This family of 6 includes three adults and boy (age 10), a boy (age 14), and a girl (age 16).

Client Six is a large family with lots of diverse needs. Included in the family is a grandparent who would like their own bedroom and bathroom separate from the rest of the family. The family also requires a large kitchen for them to all cook and eat together in and a large living room for the family to watch movies and play games in. The parents would also like a laundry room and additional storage to help with the demands of a larger family.



# CLIENT SEVEN

## NEEDS

Studio  
Client waiting room  
Large office

## WANTS

Tall ceilings  
High placed windows  
Space for multiple work stations

# DESCRIPTION

**BUILDING TYPE:** Studio & Office

Client Seven is building a new headquarters for their architectural firm. They require a building that has a large studio with space for up to 6 work stations, and a place for their clients to sit comfortably and wait. Client Seven also requires a separate office that has a space for an assistant as well as a private space to do work. To help the office feel open, the client would prefer high ceilings with plenty of long horizontal windows placed high on the walls. This will help provide plenty of natural light while preserving their privacy.

# CLIENT EIGHT

## NEEDS

A large multipurpose room  
A large exhibition area  
3 offices  
Single level

## WANTS

Windows only in front & offices  
Open floor plan

# DESCRIPTION

**BUILDING TYPE:** Museum

Client Eight is building a small, single level museum. The museum will share history and artwork about the local community. They require a large exhibition area for the artifacts and artwork as well as a large space that can be used for meetings, workshops, and other groups. Client Eight would prefer that the windows are only placed at the front of the museum and inside the offices. An open floor plan would also help with the movement of guests and provide additional flexibility for different exhibits.

# CLIENT NINE

## NEEDS

2 large rooms  
A single office with 2 areas

## WANTS

Tall ceilings  
1 space with plenty of windows  
1 space with no windows

# DESCRIPTION

**BUILDING TYPE:** Community Center

Client Nine is building a new community center that needs to separate large rooms that can be used for multiple events. One room should have plenty of windows and provide lots of natural light. The second room should have no windows. To help the spaces feel open even when they are crowded, Client Nine would like the rooms to have tall ceilings. The community center also needs an office that has 2 different work areas.

# CLIENT TEN

## NEEDS

Reception Area  
Breakroom/kitchen  
Bathrooms  
Conference space

## WANTS

Tall ceilings  
High placed windows  
Open Concept  
Opportunity to rent work spaces to

# DESCRIPTION

**BUILDING TYPE:** Office Building

Client Ten needs an office building for their company of 30 employees. While the building will primarily serve their business, they would like the building to be designed so they could rent out work space to others for additional revenue if needed. The design of the space should be open with work stations for each person. A reception area is needed to welcome clients as well as a conference room for group collaborations. The client prefers natural light, but would like the windows to be placed high similar to Wright's Drafting Room in the Oak Park Home and Studio.

# CLIENT ELEVEN

## NEEDS

Showroom/gallery space  
Reception/sitting area  
3 work stations  
Space to collaborate

## WANTS

Welcoming, laid back design  
Open concept with different zones  
Keep historic details

# DESCRIPTION

**BUILDING TYPE:** Re-design of historic building into office space

Client Eleven has recently purchased a two-story home that was originally built in 1889. Client Eleven needs the historic home to be re-designed into an office building for their small design firm. They would like the first floor to be an open space to meet clients and showcase their work with a welcoming, laid-back feel. Upstairs, they need space for 3 designers. While they spend a lot of time collaborating and working together on projects, each needs their own individual work-space. The client would also like to highlight some of the unique details of the historic home in the new design.

# CLIENT TWELVE

## NEEDS

Kitchen  
Counter/register area  
Separate to-go and seating areas  
Bathrooms

## WANTS

Feature original fireplace

# DESCRIPTION

**BUILDING TYPE:** Re-design of historic building into coffee shop

Client Twelve needs a historic building to be re-designed into a coffee shop. The building is long and narrow and sits on a busy main street. There is an alley on the left side of the building and a local store that shares the right wall. Client Twelve would like the coffee shop to be a place where people can grab a quick cup on-the-go or sit leisurely with a friend or good book. As a result, they need a unique design solution to help people in a hurry get their cup of coffee separate from those who are staying for a while. Inside, the building also features a large central fireplace that the clients would like to feature in the new design.