



FRANK
LLOYD
WRIGHT
TRUST

BUILD IT WRIGHT

GRADE: 3-5, Middle School, High School

TIME: OPEN

With each design he created, Frank Lloyd Wright pushed the boundaries of architecture while also creating something personal and intimate for his clients. In this lesson, participants are challenged to create a design that is both innovative and unique while still meeting the needs of their client. Finished designs will be modeled in 3-dimensions and to scale.

INTEGRATED SUBJECTS: Visual Art, Math, & Science

OBJECTIVES

MATERIALS | RESOURCES

Examples of Wright's designs
Rulers
Grid Paper with ½ inch squares (pre-cut to size of base)
Bases (foam core, tag board, or chipboard)
Tag board or cardstock
Pencils
Erasers
Ruler
Spray mount
Tracing paper
Glue
Coffee Stirrers
Scissors
Client Cards
Site Cards

1. Understand the relationship between architect and client.
2. Be challenged to create something unique and innovative while still meeting specific requirements.
3. Build a three-dimensional model to scale.

ESSENTIAL QUESTIONS

1. What methods and strategies do architects and designers use to develop their ideas?
2. What is the relationship between the built environment and quality of life?
3. What is different about experiencing a design in three-dimensions versus two-dimensions?

LESSON PROCEDURE

EXPLORE

- Examine different Wright designs with participants and discuss how Wright met the needs of each of his clients. Examples include the Frederick C. Robie House, Laurent House, and SC Johnson Administration Building. For images and further examples explore <https://www.teachingbydesign.org/multimedia/>

ENGAGE

- **Further discuss the relationship between architect and client.** Ask: What might some of the challenges be? How do you balance what you want as the designer with the needs of your client? What design choices did Wright make to create a unique building specific to his client?
- **Assign or have participants randomly choose a client card (included below).**
- **Optional: For an additional challenge have participants also choose a site card (included below).**

DESIGN

- Have participants create a design for their specific client. The designs should address each of the needs the client has listed. Initial designs can be done in sketchbooks.
- Once participants have had time to create a couple of sketches, help them begin to lay out their floor plan.
- The floor plan and model will be built using a $\frac{1}{4}$ " scale.
 $\frac{1}{4}" = 1'$
 $\frac{1}{2}" = 2'$
 $1" = 4'$
- Discuss the concept and importance of scale with participants. Provide rulers and review a couple of quick examples together. Have participants note that the grid paper is marked with $\frac{1}{2}$ " squares. Ask: How many feet is each square equal to?
- Help participants mark out the outline for each room, creating a footprint for their building and a floor plan with each of the rooms. Remind participants to mark the placement of windows, doors, and other openings.
- Once floor plans are completed, have participants create a roof plan. For simplicity, have participants use 8' and/or 12' ceilings. (8' is normal)
- To create a roof plan:
 - Label each room with either an "L" (low) or an "H" (high) to mark ceiling heights.
 - Using tracing paper and a graphite pencil, trace the buildings footprint or footprint section. Make sure to create separate ceiling plans for each high or low ceiling. On exterior walls, you may want to create an overhang by extending the outline.
 - Turn the tracing paper upside down and gently tape on top of a clean piece of cardstock.
 - Re- trace the footprint or perimeter of the building to transfer the graphite outline onto the cardstock.
 - Cut out the various roof/ ceiling pieces. Make sure to label which ones are low and high.
 - Set aside until all walls are completed.

- **To Build the model walls:**

1. Have participants cut walls from cardstock keeping in mind the same ratio that was used to draw the floor plan. Walls should be either 2" or 3" (8' or 12') tall, depending on the ceiling heights that were chosen. Wall lengths should match the lengths drawn on the floor plan.
2. Cut all windows and doorways before the walls are affixed upright.
3. After walls are cut, put a small amount of glue on the bottom edge. Coffee stirrers work well to limit the amount of glue. Hold gently in place along the corresponding wall of the floor plan for several seconds.
4. Continue to glue walls in place until all walls are completed.

- **Tips:**

- a. **Build from the inside out**

- b. **If a low roof room and a high roof room share a wall, the wall needs to be 3" (or 12')**

- **Once all the walls are completed, the roof sections can be placed over top of the walls. Leave these unglued so they can be removed to view the interior floor plan.**

CRITIQUE & INTERPRET

- **Have participants write a brief reflection about their design. Have participants explain what their clients' needs were, what they did to meet them, and what inspired their work.**
- **Display each participants' work and provide time for them to look at the other designs. Have participants discuss the process and the success of their own work.**

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.

SITE CARDS

The following cards feature twelve sites with unique characteristics that create various 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 site cards can also be paired with client cards which provide specific needs and requests. To find lessons that pair with these sites 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!

SITE ONE

ENVIRONMENT: Prairie with woods

DESCRIPTION

Slight downward slope with surrounding trees. Mostly hidden from the road. Neighboring buildings are visible but not close by. Mostly quiet and outside of the city center.

SITE TWO

ENVIRONMENT: Prairie, Urban

DESCRIPTION

Flat, long, rectangular corner lot (180 x 60 feet). Located on a busy street in an urban area. Neighboring buildings to the north are brick with a mix of architectural styles. South of the site is an open lot with a view of a park and lake.

SITE THREE

ENVIRONMENT: Prairie lake view

DESCRIPTION

Smaller, flat site (50 feet x 70 feet) between two existing buildings. Located in the middle of the block on a busy city street. Lake Michigan is located behind the site to the east across an open lot.

SITE FOUR

ENVIRONMENT: Prairie

DESCRIPTION

Large, open site with prairie grasses and scattered trees. Mostly flat. Rural location with surrounding farmland.

SITE FIVE

ENVIRONMENT: Prairie

DESCRIPTION

An open acre lot situated between residential homes. Wide street in front with an alley at the back.

SITE SIX

ENVIRONMENT: Prairie

DESCRIPTION

Mid-size site located across the street from a community park. Surrounded by buildings on both sides and to the back. The front looks out onto a wide, quiet street with large, old trees.

SITE SEVEN

ENVIRONMENT: Desert

DESCRIPTION

Large sandy site in a quiet area not far from a town center. Large rocks, cacti, and sage are scattered throughout the site. No large trees or other vegetation are included.

SITE EIGHT

ENVIRONMENT: Small mountain range

DESCRIPTION

Large site situated on the side of a small mountain range. Includes many trees and natural vegetation. A small waterfall and stream run through the center separating the site into two.

SITE NINE

ENVIRONMENT: Coastal

DESCRIPTION

Smaller site situated on a rocky coastline and directly on the water's edge. Long and rectangular with no surrounding neighbors. A road runs along the front of the site and connects to a nearby bridge.

SITE TEN

ENVIRONMENT: Mountainous, rocky

DESCRIPTION

A large lot with a steep elevation. Includes several scenic overlooks and many tall coniferous trees. Large boulders and rocks make up the majority of the landscape with few clear, level places.

SITE ELEVEN

ENVIRONMENT: Coastal, hilltop

DESCRIPTION

Mid-sized site located at the top of a large hill overlooking the coast. Little vegetation other than tall grasses. Quiet area with no visible neighbors.

SITE TWELVE

ENVIRONMENT: Forest

DESCRIPTION

Small site surrounded by mature trees. Other vegetation includes native shrubs and flowers. Elevation is even. Other buildings are nearby, but hidden by the trees.