

PRAIRIE STYLE RATIOS

GRADE: Middle School, High School

TIME: OPEN

Frank Lloyd Wright's Prairie style architecture was often dominated by low, horizontal lines and long, narrow floor plans that mimicked the lines of the Midwestern prairie. His Prairie style masterpiece, the Frederick C. Robie House in Chicago's Hyde Park, is built on a plot of land that is 180 x 60 feet – three times as long as it is wide. In this lesson, participants will consider how ratios can impact a design by measuring out the same proportions in the classroom and looking at images of Robie House. Then, they will design their own Prairie Style house using the same ratio in SketchUp or Tinkercad.

INTEGRATED SUBJECTS: Visual Art & Social Studies

OBJECTIVES

MATERIALS | RESOURCES

Images of the Robie House

4 pieces of string or tape pre-cut to a 3:1 ratio

Measuring tape

Access to computers or tablets

SketchUp for Schools (<https://www.sketchup.com>)

Tinkercad (Free at: <https://www.tinkercad.com>)

1. Increase awareness of the relationship between math and design.
2. Think critically to find a unique solution to a design problem.
3. Identify and create a work of art based on the defining characteristics of the Prairie style.
4. Understand and apply basic ratios.

ESSENTIAL QUESTIONS

1. How does Frank Lloyd Wright design architecture to fit its specific environment?
2. How do ratios impact a design?
3. How can restrictions challenge our creativity?

LESSON PROCEDURE

EXPLORE

- Pre-cut two pieces of string or tape to a specific length (example 3 feet). Pre-cut two more pieces at a length 3x's the first two (example 9 feet). These pieces should be big enough to create a large rectangle that participants can stand in (example 3 feet x 9 feet).
- On the playground or in your classroom, have participants take the string or tape and lay out a large rectangle.
- Have participants measure each side together and determine the ratio of length to width.
- Have participants walk around the rectangle and stand inside it.

ENGAGE

- Introduce Frank Lloyd Wright and the Prairie style by examining the Robie House. Background information is available at: <https://www.teachingbydesign.org/about/prairie-style/> Images are available at: <https://www.teachingbydesign.org/multimedia/>
- Explain the similarities in proportion and the unique design challenge it presented to Wright. Ask: How did Wright solve this problem? What unique characteristics did this give the Robie design? Did this help or harm the design?

DESIGN

- Using SketchUp or Tinkercad, have participants design their own Prairie style house within a rectangle that is three times long as it is wide. The design does not have to be a rectangle but should use as much of the available space as possible.

CRITIQUE & INTERPRET

- Once participants are finished, have them reflect on the process design challenges. Ask: What was most/least difficult? What did you have to change or alter? What about the space did you use to your advantage? What characteristics of the Prairie style are most represented in your design?