TEACHING BY DESIGN

FRANK LLOYD WRIGHT TRUST

DESIGNED FOR PURPOSE

GRADE: K-5
TIME: 60 minutes

What do we need from our houses? Does everyone use a house the same way? Frank Lloyd Wright designed Organic, purpose-built architecture that was unique to the place, purpose, and time for which it was built. In this activity, participants consider what it means to design for purpose by understanding how diverse families use houses differently and rethinking multiple layouts for the design of a house based on the needs of the people living there. Observing how the built environment is determined by human needs helps participants to consider real life applications of science in art and design. It also prepares participants to evaluate and choose a solution that fits a specific need (engineering) and use scale and pattern to represent a theme or idea (math).

INTEGRATED SUBJECTS: Visual Art, Math & Engineering

MATERIALS | RESOURCES

Sample floor plans of Wright houses
Per Participant:
- Three sheets of ¼" graph paper
- Ruler
- Pencil
- Rectangles
  - (1) 2"x 3" rectangle
  - (1) 3"x 1" rectangle
  - (1) 2" x 1.5" rectangle
  - (1) 2"x 1"rectangle
  - (1) 2" square
  - (2) 1" squares

OBJECTIVES

1. Understand ways that architecture and design can shape and improve the way we live.
2. Explore examples of Organic Architecture while developing visual literacy.
3. Increase awareness of Frank Lloyd Wright and Chicago-area architecture.
4. Engage in the design process by creating a unique floor plan.
5. Think critically to brainstorm multiple design solutions.

ESSENTIAL QUESTIONS

1. What is unique about Frank Lloyd Wright's architecture?
2. How does need influence design?
3. How can we use math and engineering to design for purpose?

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LESSON PROCEDURE

EXPLORE

5 minutes

- **Introduce Frank Lloyd Wright, Organic architecture, and Wright's designs for diverse families (such as the Frederick C. Robie House, the Emil Bach House, and the Laurent House). Background information is available at: https://www.teachingbydesign.org/about/frank-lloyd-wright/**
- **Spend time looking at images and floor plans. Images are available at: https://www.teachingbydesign.org/multimedia/**

ENGAGE

10 minutes

- **Begin a discussion about what people need from their houses and how that might differ from family to family. Consider what it means to design for purpose. Ask:** What are some of the most useful parts of your house? What are some of your favorite parts of your house? What did the families living in Frank Lloyd Wright's houses like most about their homes? What was most useful for them? How did Frank Lloyd Wright change each design to fit the needs of the families that lived in them? What shapes did he use and how did he change the locations of the rooms?

DESIGN

40 minutes , 15 minutes for each additional prompt

- **Using a template or a list of given dimensions, have participants measure and cut seven squares and rectangles of varying sizes.**
- **As participants wait for others to finish cutting, have them experiment and spend some time arranging the rectangles on graph paper, like rooms in a house, to create a floor plan.**
- **Once all participants have a set of shapes, introduce a prompt in response to which participants will complete a drawn and labeled floor plan. Allow time to try multiple solutions. Provide as many prompts as time allows.**

  Prompt 1: Ask participants to arrange a floor plan for their ideal home and trace or measure out and mark their rooms in pencil on the graph paper. Have them label each room and describe its purpose in one sentence. Finally, have them consider why they chose the sizes they did for each room and where they put them (is the biggest room a game room, kitchen, living room? Is the dining room next to the kitchen?).

  Prompt 2: On a second sheet of graph paper, ask participants to use the same shapes to design a house for a family with five children. Label and describe the rooms and consider their arrangement in the same way as prompt two. Then consider: How might this family use a house differently? What does this family need from their house?How might the shapes change? Why might some rooms need to be bigger or smaller for this family?

  Prompt 3: On a third and final sheet of graph paper, ask participants to arrange the rooms for two people, one of which uses a wheelchair, and label and describe the rooms and consider their arrangement once more. Consider: How might this family use a house differently? What does this family need from their house? How might the shapes change? Why might some rooms need to be bigger or smaller for this family?

CRITIQUE & INTERPRET

5 minutes

- **Group student solutions to each design problem on the walls or tables, and spend time with each group, comparing and contrasting different approaches to the families' needs. Begin a discussion about the approaches and ask:** What patterns emerge? Did multiple students solve the same problem the same way? What approaches were different, and what are some strengths? Are there any design solutions you see in someone else's design that you think would work well in your own design?
- **Finally, consider:** What does it mean to design for purpose? What factors do architects consider when designing? How does creating your own design change the way you look at and think about the houses Wright designed?

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