

# DIGITAL MODELING

**GRADE:** Middle School, High School

**TIME:** OPEN

In this lesson participants engage in the architectural practice of model building by drafting designs in three-dimensions using SketchUp or Tinkercad. Modeling is a practice used by design professionals to work-out ideas, revise, critique, and challenge themselves. Taking part in this practice gives insight in to the design profession while providing hands-on opportunities to develop and strengthen skills. Models will be drafted using 1/4" scale.

**INTEGRATED SUBJECTS:** Math, Science, & Visual Art

## OBJECTIVES

### MATERIALS | RESOURCES

Images of Wright's designs

Access to computers or tablets

SketchUp (available free online at:  
<https://www.sketchup.com/>)

Tinkercad (available free online at:  
<https://www.tinkercad.com>)

Sketchbooks

Pencils

Client Cards

Site Cards

1. Develop skills in modeling and drafting in three-dimensions.
2. Introduce new technology and resources.
3. Learn about and experience practices used by professional designers.
4. Think critically to creatively solve unique design challenges.
5. Accurately and successfully apply the use of scale in a design.

## ESSENTIAL QUESTIONS

1. Why do designers create models and drafts of their work?
2. What skills and strategies are needed to draft digitally in three-dimensions?
3. How can technology enhance the way we design and create?

# LESSON PROCEDURE

## EXPLORE

- Explore some of Frank Lloyd Wright's designs and have participants take a few minutes to look and observe. Examples of Wright's work are available at: <https://www.teachingbydesign.org/multimedia/>
- **Ask:** What do you see? What elements of design do you notice first? How are they used and what do they do?

## ENGAGE

- **Guide discussion to begin exploring Wright's design choices and the design process.**
- **Ask:** Why do you think Wright made that design choice? What things do you think he consider when making the decision? Do you think he tried it out or practiced first? How do you think he worked out his ideas?
- **Review the design process with participants and discuss each of the steps. A design process map is available at: <https://www.teachingbydesign.org/multimedia/>**
- Introduce modeling to participants and discuss how professionals use it.

## DESIGN

- Assign or have participants randomly choose a client and/or site card. Client cards and site cards are available at: <https://www.teachingbydesign.org/multimedia/>
- Using SketchUp or Tinkercad, have participants design a unique model that addresses the specific needs of their client.
- Models should be drafted in 1/4" scale. ( 1/4"=1', 1/2"= 2', 1" = 4')
- As participants draft their designs, provide time for check-ins and short critiques to provide feedback.

## CRITIQUE & INTERPRET

- Once participants are completed with their designs, have them present their work as they would to their clients by creating a proposal and presentation.
- Allow time for each participant to present their work.
- Have participants complete a self-evaluation of their work and reflect on the experience.