

# TEXTURE TESSELLATIONS

**GRADE:** 9-12

**TIME:** OPEN

In this activity, participants use Frank Lloyd Wright's textile block designs to explore texture, pattern, and complex geometry in both nature and design. After studying examples of Wright's textile block designs, such as those for Midway Gardens in Chicago's Hyde Park, participants look for examples of pattern and repetition in nature and use foam core, popsicle sticks, and wood scraps to build a mold for their own textile blocks that can be tiled together to create a large tessellation.

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

## OBJECTIVES

### MATERIALS | RESOURCES

T-squares  
Straightedges  
Triangles  
Rulers  
Compasses  
Wood scraps  
Popsicle sticks, coffee stir sticks, or cardboard  
Sketch paper  
Pencils  
Black marker  
Concrete mix

1. Explore and make connections between Frank Lloyd Wright's design legacy and how design can shape and improve the world around us.
2. Examine the use of geometry and texture in Frank Lloyd Wright's work.
3. Seek inspiration from nature by looking for pattern and repetition.
4. Develop problem solving skills and design strategies.

## ESSENTIAL QUESTIONS

1. What is unique about Frank Lloyd Wright's architecture?
2. How do repetition and pattern affect the way we look at a building?
3. What is the relationship between nature and geometry?
4. How can you use geometry to create innovative designs?

# LESSON PROCEDURE

## EXPLORE

10 minutes

- Introduce Frank Lloyd Wright and his unique design philosophies including Organic Architecture. Visit: <https://www.teachingbydesign.org/about/organic-design/> and <https://www.teachingbydesign.org/design-elements/frank-lloyd-wright-concepts/> for resources, images, and information.
- Share some of Wright's notable textile block designs such as those for Chicago's Midway Gardens or Ennis House and Millard House, both in Los Angeles.
- Allow time for participants to look and discuss what they see. Ask: What design elements do you notice? What do they do? How do the textile blocks interact with the rest of the building's design? How do they interact with the buildings location? How do you think they might impact the way people experience the building?
- Shift the focus of discussion to tessalations and begin sharing examples from Midway Gardens and Wright's later designs.

## ENGAGE

30 minutes

- Research and explore the local community together, and ask participants to identify at least three examples of pattern and rhythm. Have participants describe their impressions of and reactions to each, and make a quick sketch. These examples could range from leaves and flowers, to shadows on the ground, to the way people cross the street.
- Referring to their sketches, have participants brainstorm ways to represent each pattern using only geometric shapes in a way that would incite a similar response in the viewer, and draft the patterns with black marker.

## DESIGN

Open

- In small critiques, allow participants to discuss their patterns and choose the strongest one for further development. If needed, provide time and resources for continued research (images of and text about Wright's work, or examples of tessellations in historical and contemporary architecture and design).
- Next, ask participants to imagine their pattern as a three-dimensional, repeating design (tessellation), and create a second draft. This draft should repeat and transform the pattern into a grid of at least four blocks (in a series of rotations, reflections, or translations).
- After sketches are completed, have participants create a 3D mold for their design. Molds can be constructed with popsicle sticks, coffee stirrs, wood scraps, or foam core. Remind participants that the block will be a negative imprint of the mold.
- Using hand-mixed concrete or plaster of Paris, cast at least one mold of each participant's design.

## CRITIQUE & INTERPRET

20 minutes

- Ask participants to prepare an artist's statement, describing the patterns they chose and their design process.
- Allow participants to share their work and hold a critique to discuss the design aspects, successes and challenges of each work.
- After the critique, ask participants to reconsider Wright's textile block designs. Consider: How can nature be represented through geometric design? If an entire wall was constructed for your design, how might it affect the way someone feels? How do your designs compare to Frank Lloyd Wright's? Were you pursuing similar or different goals when working on your design? What was most challenging about this design process? What is most successful about your design? What would you improve if you made a second mold?