

BRICK BY BRICK

GRADE: 6-12

TIME: Three 45-minute sessions

Bricks are the building blocks for many works of architecture. Though small and plain at first glance, their variety of colors and bonding styles can define a truly iconic building. In Session One, students will observe brick buildings near their school and will research their architecture. In Session Two, students will explore different brick bonding styles using Legos and will study Wright's use of bricks in his Prairie style homes to capture the forms and colors of the Prairie. In Session Three, students will recreate a local brick building using Legos and will reflect on their artwork and learning.

INTEGRATED SUBJECTS: Visual Arts

OBJECTIVES

MATERIALS | RESOURCES

Pencils and paper/ sketchbooks for sketching or phones/ cameras for photography

A variety of Legos per student

2x4 Lego bricks (20 per student)

Brick of Chicago's Website: <https://www.brickofchicago.com/learn>

Internet/ device access for independent research

Images of Lego Brick Bonds (Appendix A)

Images of Prairie style Homes (Appendix B)

1. Observe local brick buildings and their architectural styles and details.
2. Identify and recreate different styles of brick bonds.
3. Understand how Frank Lloyd Wright used bricks in his Prairie style designs.
4. Recreate a local building and its brick bonding style using Legos.

ESSENTIAL QUESTIONS

1. What kind of patterns/bonds can be used to make brick buildings?
2. How can bricks contribute to a building's architectural style?
3. What role did bricks play in Frank Lloyd Wright's Prairie style of architecture?
4. How can looking at bricks help develop close-looking strategies?

LESSON PROCEDURE

EXPLORE

Session One (Optional: Assign Independently)

- **Begin by taking a neighborhood walk near your school as a class (or assign walks independently).** Ask students to take pictures or sketch some of the brick buildings on their walk. These buildings can be public, commercial, or residential, but remind students to be respectful when observing privately owned buildings. Instruct students to take pictures or sketch the building's brick patterns (bonds). Encourage students to notice any special brick decoration or unique patterns.
 - ◊ (Tip: Before facilitating this lesson, it is recommended that you familiarize yourself with basic brick bonds that your students might see in your school's neighborhood.)
- **Pose the following research questions to students:**
 1. **What are the advantages of using brick as a building material?**
 2. **What are disadvantages of using brick as a building material?**
 3. **Where does brick come from?**
 4. **Are there many brick buildings in your city? Why or why not?**
- Encourage students to identify the architectural style of the buildings they sketched/photographed. Ask students to consider how the bricks contribute to the building's architectural style. Use this style guide as a resource <https://dahp.wa.gov/historic-preservation/historic-buildings/architectural-style-guide> or find a style guide more specific to your city.

EXPLORE

Session Two

- Distribute about 20 2x4 Lego bricks to students. Direct students to spend 2-3 minutes building a wall. Do not provide any more specifications.
- Ask students to compare their wall to their classmates' and point out any major differences between students' creations.
 - ◊ Discuss: Are the bricks all oriented in the same direction or different directions? Are the bricks lined up the same or a different way?
- **Next, define headers and stretchers, and provide a basic introduction to common brick bonds. Have students leave their Lego wall constructed as they research.**
 - ◊ For resources, students can visit Brick of Chicago's website to learn more about brick bonds at <https://www.brickofchicago.com/learn>. Show a video on basic brick bonds at <https://youtu.be/kBXXDK9ooyI?si=DT8KXwW5bi-PHxdQ>.

ENGAGE

Session Two

- **Distribute 20 2x4 Lego bricks to each student. Instruct students to recreate a wall made up of English bonds (Fig. 1).** (For my example, I'm using one color to create the row of headers and use another color to create the row of stretchers. You can ask your students to do the same, if able, or simply use whatever Legos your classroom may have.) **If students' walls are not standing, direct students to connect the header blocks to the stretchers where two blocks below meet, to hold them in place.**
 - ◊ Turn the wall around (Fig. 2). Ask students what they notice? How do brick layers lay brick so that the headers don't stick out into air? Tell students that bricklayers sometimes lay 2 layers of brick (Fig. 3). Instruct students to fill in the back of their wall with extra stretcher pieces to complete their build. (I used a different color to fill in the back of the build, but you can ask your students to use whatever color(s) you have available).

LESSON PROCEDURE

(continued)

ENGAGE

Session Two

- **Instruct students to take apart their English bond wall. Next, direct students to create a Flemish bond using the same Lego bricks (Fig. 4).** (Again, if possible, encourage students to use one color for bricks whose headers create the wall and another color for the bricks whose stretchers create the wall).
 - ◊ Once again, ask students to turn their wall around (Fig. 5). For Flemish bond, bricklayers also lay 2 layers of brick. Instruct students to fill in the back of their wall with extra stretcher pieces to complete their build (Fig. 6).
- **Tell students to dissemble their Flemish bond wall.**
- **Finally, ask students to create a stretcher bond using the same 2x4 bricks (Fig. 7).** (Encourage students to use one color of bricks, if possible.) **Direct students to leave their stretcher bond wall constructed as reference during the next section of instruction.**
- **Next, define “Prairie style” design for students and introduce Frank Lloyd Wright, by exploring our website, <https://www.teachingbydesign.org/about/prairie-style/>.** Show images of bricks on Prairie style buildings such as the Dana-Thomas House (Fig. 1), the Darwin Martin House (Fig. 2), and the Arthur Heurtley House (Fig. 3). **Ask students to describe what they notice about those buildings’ bricks:**
 - ◊ What kind of bond is used in these Prairie style homes? Are the bricks long/short? Wide/thin?
 - ◊ Do any of the buildings create decorative patterns using the bricks? Visually, do the bricks create stronger vertical or horizontal lines?
- **Show images of the Midwest prairie. Explain that Wright was inspired by the long, horizontal lines of the prairie and that he wanted those lines reflected in his brick buildings. He used stretcher bonds to achieve this look.**
 - ◊ Explain that these homes use Roman bricks, which are thinner than typical bricks. Show images of Wright’s Robie House (Fig. 4 and Fig. 5). Ask students to point out additional design choices, aside from the bricks, that contribute to the building’s horizontality.
 - ◊ Tell students to look at the mortar, or the glue that holds bricks together (Fig. 6). Ask students: What color is the vertical mortar? What color is the horizontal mortar? What lines or forms stand out because of the mortar colors?
- **Direct students to look at their sketches or images of brick buildings from Session One. Ask students:** What brick bonds form the buildings? Do the bricks fit in with the building’s environment or purpose? Do the bricks match the building’s architectural style?
- **Ask students to dissemble their Legos and to clean up as the session wraps up.**

DESIGN

Session Three

- **Distribute a variety of Legos to each student.**
- **Ask students to revisit their sketches or images they took on their neighborhood walk. Instruct students to pick one of the buildings from their neighborhood walk to try and recreate with Legos. Allow students to use whatever variety of sizes and colors of Legos that best capture the brick bonding style of their building.**
 - ◊ Optional Extension: If students are done early, ask students to create more difficult brick patterns like Flemish diamond bonds or challenge them to create their own brick bond pattern.

LESSON PROCEDURE

(continued)

CRITIQUE & INTERPRET

Session Three

- Direct students to set up their Lego buildings around the room. Then, split the class into partners – assigning a Partner 1 and Partner 2.¹
- Instruct each set of partners to stand in front of Partner 1’s artwork, holding a notebook or Post-it note and a pen or pencil. Then, direct both Partner 1 and Partner 2 to look at Partner 1’s artwork and write down 3 things they notice about the artwork. Remind students to show kindness and respect as they comment on the artwork.
- Ask students to compare their lists, noticing similarities and differences. Encourage students to hypothesize why they had similar or different perspectives.
- Next, instruct both partners to look at Partner 2’s artwork and to once again write 3 things they notice about the artwork.
- Once again, ask students to compare their lists and discuss.
- Afterwards, students can share their reactions from the activity.
- As a whole class, pose the following discussion questions to students:
 1. Is brick design a work of art? Why or why not?
 2. What did you learn about the brick buildings in your neighborhood?
 3. How can you apply the ways you looked closely at bricks to looking at other kinds of art?
 4. How can brick styles contribute to a style of architecture?
 5. What role did brick play in Wright’s Prairie style homes?
 - Optional Extension: Connect students’ Lego models with math learning, directing students to calculate the area, perimeter, surface area, and/or volume of their Lego building.

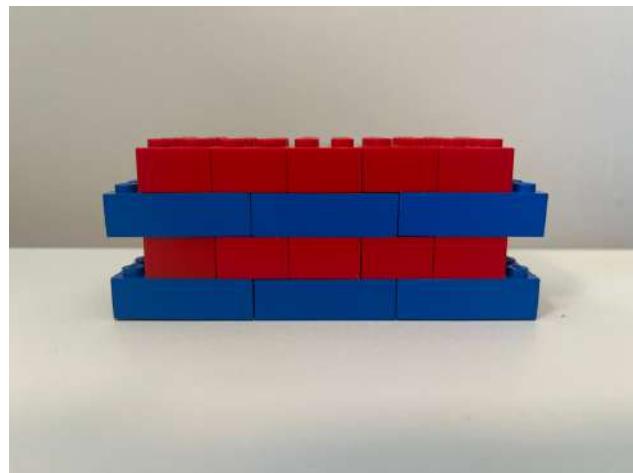
¹<https://theartofeducation.edu/2022/12/dec-6-activities-to-get-your-students-excited-to-talk-about-art/>

Lego Brick Bonds

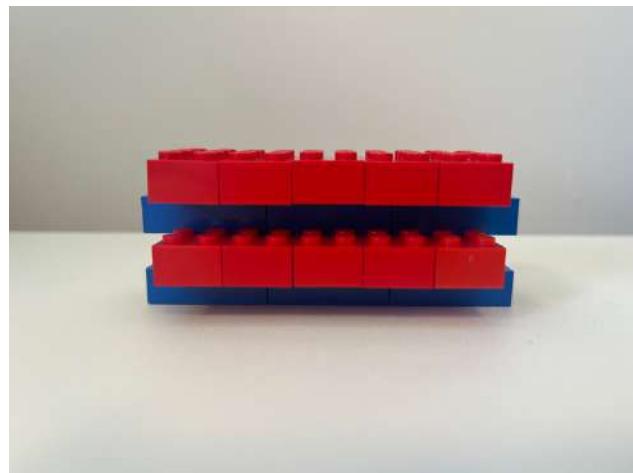
Appendix A

English Bonds

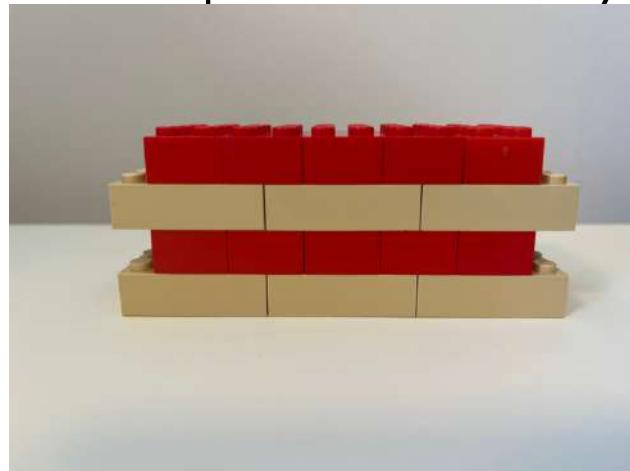
Front of Wall (Fig. 1)



Back of Wall - Initial (Fig. 2)

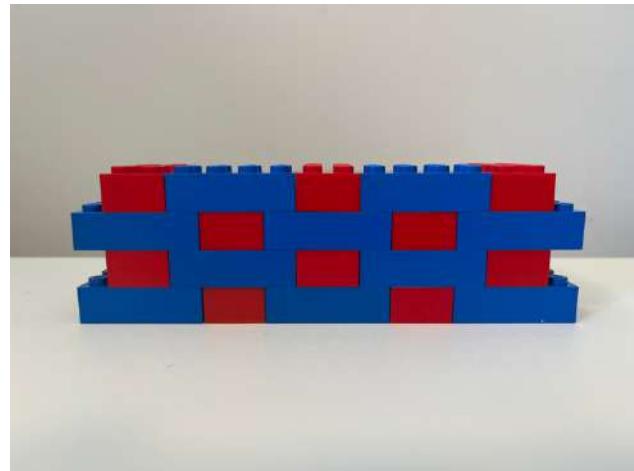


Back of Wall - Completed Double Layer (Fig. 3)

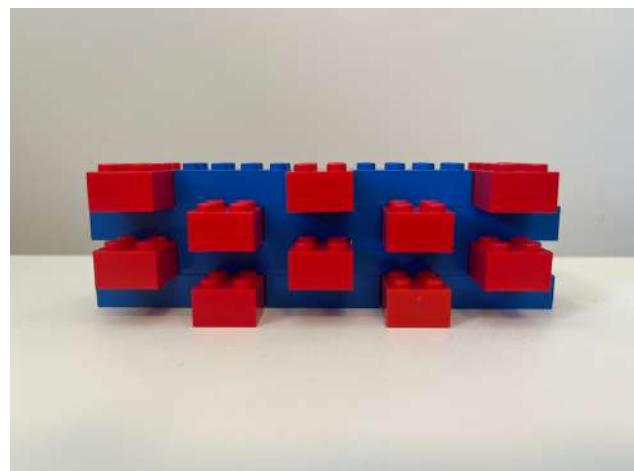


Flemish Bonds

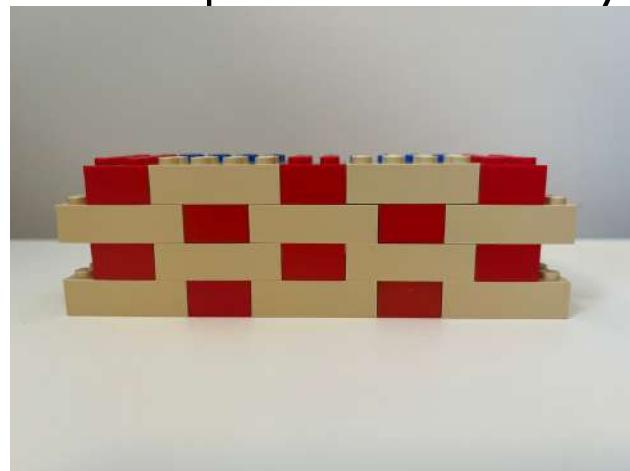
Front of Wall (Fig. 4)



Back of Wall - Initial (Fig. 5)

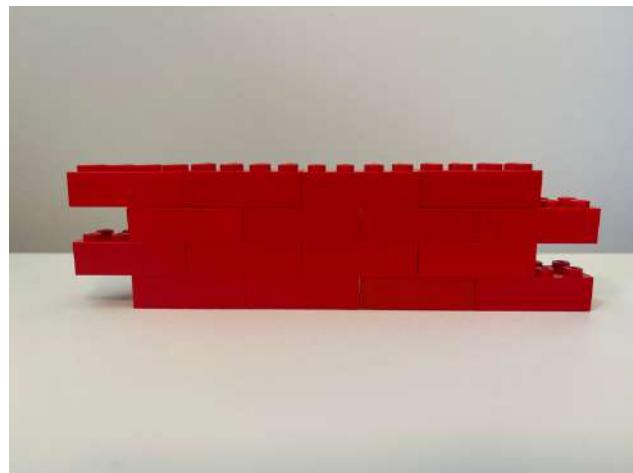


Back of Wall - Completed Double Layer (Fig. 6)



Stretcher Bond

Front of Wall, 2x4 bricks (Fig. 7)



Name:

Appendix B

Images of Prairie Style Homes

Dana Thomas House (Fig. 1)



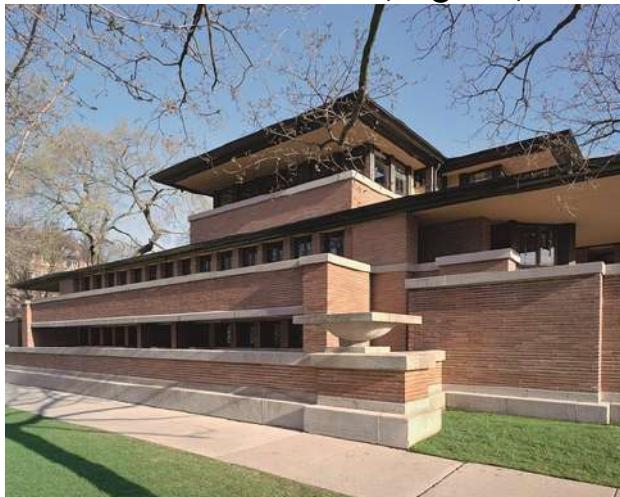
Darwin Martin House (Fig. 2)



Arthur Heurtley House (Fig. 3)



Robie House (Fig. 5)



Robie House (Fig. 4)



Robie House
brick (Fig. 6)



Image Credits:
Fig 1. - Library of Congress
Fig 2. - U.S.News, Travel
Fig 3. - Wednesday Journal