

# CHILD OF THE SUN: FRANK LLOYD WRIGHT'S USE OF THE SUN IN ARCHITECTURE TO INSPIRE SUN PRINTS

**GRADE:** 3-8

**TIME:** Two 50-minute sessions, one 30-minute session

Frank Lloyd Wright recognized the importance of making use of the sun in his architecture. He valued the beauty of natural light and the passive solar heating the sun would provide, and he found ways to deflect the sun when it was not needed. Participants will explore several of Wright's building methods and styles of windows that make use of the sun. Participants will then head out into the sunlight to create their own unique sun prints and discover the power of the sun.

**INTEGRATED SUBJECTS:** Visual Arts, Science

## OBJECTIVES

### MATERIALS | RESOURCES

Nature print paper or Sunprint Kit

Small flat objects with interesting shapes.

For example: ferns, feathers, lace, keys, or leaves.

Sink or dishpan with water. (Tip: change water frequently during the lesson)

A place to hang wet prints, or a countertop for drying.

Examples of Sunprints (Appendix A)

**Optional:** cardboard for transporting prints, transparency sheets or plexiglass.

**Differentiation:** An outside walk to find natural objects could include a discussion about where the sun is at what time of day, where the shadows are and what the temperature is.

1. Explore Frank Lloyd Wright's homes and buildings noting his use of window styles.
2. Examine the ways in which the sun can be used by architects for light and heat and decoration.
3. Use the sun to create a unique sun print using cyanotype paper.

## ESSENTIAL QUESTIONS

1. How can we illuminate interior spaces using the sun?
2. What types of windows will afford light, air and warmth as well as provide some privacy and allow for wall space?
3. What happens when light sensitive paper is exposed to the sun? What happens to other objects that are in the sun too long? Older students may want to explore how to create their own light sensitive paper.

# LESSON PROCEDURE

## EXPLORE

### Session One

- Introduce the concepts of how architects use the sun and how they consider the sun when designing heating and cooling methods.
- Show examples of Frank Lloyd Wright’s homes that make use of clerestory (pronounced clearstory) or ribbon windows.
- Explore images of Wright’s designs for the campus at Florida Southern College and look at the Jacobs II home which Wright termed the “Solar Hemicycle.” Other homes to explore are the Paul and Ida Trier Residence in Iowa, the Avery Coonley Playhouse in Illinois and the Bachman Wilson House in New Jersey. These all have excellent examples of clerestory windows. Listed here are some links for more information on these structures.
  - ◇ <https://www.flsouthern.edu/frank-lloyd-wright-home/history>
  - ◇ <https://sah-archipedia.org/buildings/WI-01-DA43>
  - ◇ <https://www.thoughtco.com/what-is-a-clerestory-window-178425>
- As students explore images of Wright’s homes, ask students how Wright uses sunlight as a design feature and as art within his buildings. Great examples of light and sunlight as art in Wright homes can be found below.
  - ◇ <https://www.artic.edu/artworks/105203/triptych-window-from-the-coonley-playhouse-riverside-illinois>
  - ◇ <https://flwright.org/explore/frank-lloyd-wrights-leaded-glass>
  - ◇ <https://flwright.org/explore/rookery>
  - ◇ <https://flwright.org/explore/frederick-c-robie-house>

## ENGAGE

### Session One

- Ask participants to consider their own living space or classroom and how it is illuminated.
- Ask participants what benefits or limitations come with the use of clerestory windows.
- Share images of the Trier Residence, the Coonley Playhouse and the Bachman Wilson House. Ask participants to discuss the design of the Jacobs II home and view images of the “Solar Hemicycle”.
  - ◇ Why would all the large windows be placed on the south side of the house? What is the purpose of a berm built up on the north side and what would be the benefit of clerestory windows on this side?
- Explain to students that in the next session, they will be using the sun and some natural materials to create unique pieces of art.

## DESIGN

### Session Two

- Show students art glass and architecture designed by Frank Lloyd Wright, review the concepts and ideas from last session.
- Demonstrate to participants how they will arrange objects like leaves, lace, or other interesting forms on the sun print paper. Care must be taken not to expose the paper to the sun until all the objects are arranged. A clear sheet of transparency paper may be used to hold objects in place. Expose to full sun for at least 5 minutes.
- Encourage students to create pieces inspired by Frank Lloyd Wright’s buildings and art glass (this is not required but can be a nice challenge for older students).

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# LESSON PROCEDURE (continued)

- ◇ Tip: Teachers try this on their own to avoid any problems.
- ◇ Tip: Find interesting objects such as flowers, keys, glasses, or anything with a distinctive shape. Consider the silhouette of your objects when deciding what to use.
- Rinse the paper in water for about 1 minute and hang it to dry or lay on a counter. The paper will be fragile when wet. Carefully hold it by the edges.
- You may want to press the dried prints under a heavy book to avoid curled edges.

## CRITIQUE & INTERPRET

- When prints are dried and flat, display and discuss what methods worked best to make a sun print. Ask participants how long they exposed their paper, what objects worked best and what they might do differently.
- Ask students to hypothesize about how this process works. Depending on the age of your class, introduce the scientific explanation of how a cyanotype works.
- Photosensitive paper is coated with a chemical that changes color when it's exposed to certain wavelengths in sunlight. Participants will use objects to block the sun's light to stop those changes from happening. The following link will provide important information:
  - <https://curiodyssey.org/wp-content/uploads/2020/06/Science-Experiment-Sun-Prints-V2.pdf>

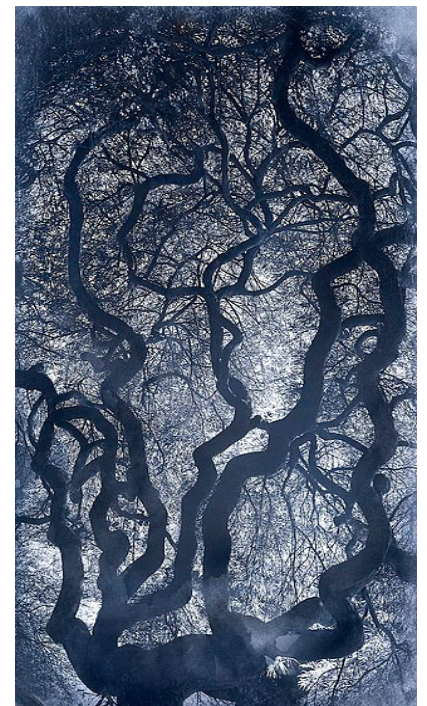
## APPENDIX A



Bertha Evelyn Jaques, Untitled,  
1900



Anna Atkins, 19th Century



Kate Cordsen, Indigo XII, 2014