

DIGITAL DESIGN: ART GLASS ANGLES

GRADE: Middle School, High School

TIME: 60 MINUTES

This lesson is an introductory activity to the tools in SketchUp, primarily the line tool, and to measuring angles. Participants will view examples of Wright's famous art glass designs, and discuss the patterns in nature that inspired Wright. Participants will then create their own nature inspired art glass and draft them digitally with SketchUp. Afterward, participants will switch their designs with a partner and measure and label each of the angles.

INTEGRATED SUBJECTS: Math, Science, Technology, Visual Art

OBJECTIVES

MATERIALS | RESOURCES

Images of Wright's art glass designs
Access to computers or tablets
SketchUp (available free online at:
<https://www.sketchup.com/>)

1. Explore Frank Lloyd Wright's art glass designs.
2. Examine and use the design concepts of symmetry and abstraction.
3. Develop basic drafting skills in SketchUp.
4. Practice measuring and labeling various angles.

ESSENTIAL QUESTIONS

1. What inspires a design or artwork?
2. What role does abstraction play in design?
3. What strategies can you use when drafting something digitally?

LESSON PROCEDURE

EXPLORE

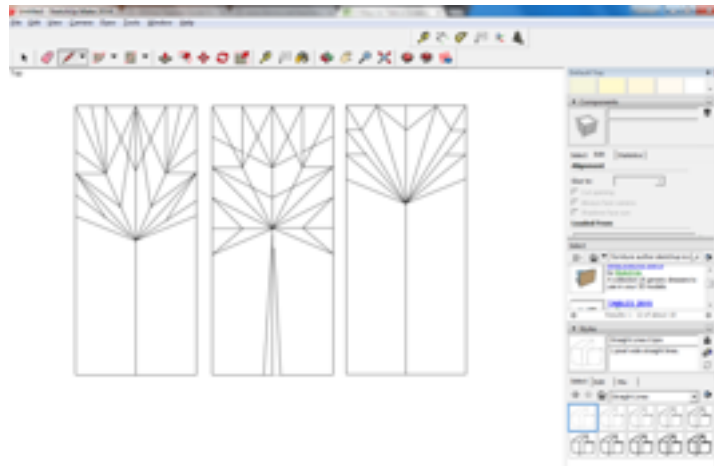
- Introduce Frank Lloyd Wright’s art glass designs by sharing examples. Images are available at: <https://www.teachingbydesign.org/multimedia/>
- Discuss the elements of design that Wright used to create them. Be sure to point out symmetry, lines, geometric shapes, patterns and repetition, and color. (<https://www.teachingbydesign.org/design-elements/elements-of-design/>)

ENGAGE

- Ask participants if they recognize the designs as something else. Do they look like anything in nature?
- Discuss the role nature played in inspiring Wright’s work and its impact on the design of the buildings he created.

DESIGN

- Have participants create their own art glass designs inspired by something in nature. Similar to Wright’s work, participants’ designs should be symmetrical, include clear and colored glass, and be an abstract representation of their natural inspiration.
- **NOTE:** In SketchUp change the style to “straight lines” in the lower right hand corner and the view to “front”.
- **DRAFTING STEPS:**
 1. Begin by drawing a “frame” for your window. This can be any shape.
 2. Use the line tool to draw the casing for the design.
 3. Select the Paint Can in the toolbar to add color.



CRITIQUE & INTERPRET

- Once participants have completed their design, help them reflect on the process of drafting with SketchUp. What strategies did you use? What was easiest/most difficult? What would you do differently? What was successful? Did you have to think differently than you do when hand-drawing a design?
- Have participants switch designs with a partner and measure and label each of the angles.
- Afterward, have participants consider the relationship between math and design.