HIGH MUSEUM OF ART ATLANTA

# STEAM: Science, Technology, Engineering, Art, and Math
# Workshop Lesson Plan for Middle School Students
# 2023–2024 School Year

**What's the Big Idea?**
Empathy, Creative Problem Solving, and Design Thinking

**STEAM Tour and Workshop Purpose**
Students will use the High's collections as evidence of creative problem solving, learning directly from the objects as to how artists create innovative solutions to complex problems.

**Learning Objectives**
*Essential Questions*
Use the following guiding questions as you lead your students through the workshop:

- How do artists, designers, and scientists use empathy to think about and solve problems?
- What does the research process look like?
- How are art and design important to our communities?

*Students will be able to . . .*

- Discover how artists use empathy to ask questions and explore solutions
- Create and test theories as to how a complex work of art was created
- Use creative problem-solving techniques to explore process
- Consider how art and design affect people in their community

**Vocabulary**
Artist
Design
Empathy
Engineering Design Process
Experimentation
Research
Scientific Method

**Materials**
Tagboard
Acetate sheets (clear)
Holographic sticker paper
Construction paper strips (assorted paper)
Collage paper
Tissue Paper
Tracing paper
Pastels
Glue
Scissors
Tape
Stamps
Stamp pads
Cardboard tube stamps (for rolling)

**Materials for the Instructor**
Visual schedule
Visual timer
Laminated images of *Bird Motif*

**Procedures**

Introduction (5 mins)

Explain how artists are like designers, explorers, and scientists; they all experiment and use creative problem solving! Students will become artist researchers by using the scientific method to deconstruct and investigate how artist Irene Rice Pereira made her artwork *Bird Motif*. Review the steps of the scientific method (or engineering design process) with students: making an observation, asking a question, creating a hypothesis, experimenting, analyzing results, and drawing a conclusion.

Observation and Hypothesis (10 mins)

Ask students to discuss *Bird Motif* in small groups. What do they notice? What hypotheses do they have about how this work of art might have been made—what steps might the artist have taken and in what order? Students will make a brief list of ideas, and a spokesperson from each group will share them with the class. Gauge student interest and talk about the similarities or differences between the research process in art and the research process in other fields.

Experimentation (25 mins)

Students will now experiment with materials as a means of investigating. If their group came up with multiple ways in which this work of art might have been made, they can choose which method they'd like to test individually. Students will each have a piece of tagboard. In addition, they will find an assortment of different materials at their tables to experiment with—clear acetate sheets, colorful types of paper, stamps, tape, holographic stickers, and markers. With these materials, students will explore how the artist made *Bird Motif* and then develop their own subject. How will they layer their materials? How will *Bird Motif* inspire them to create their own composition? Will they focus on one aspect of the artwork and experiment with developing it further? At the end, have the groups compare and contrast their different hypotheses.

Differentiation

- Extensions: For advanced students, additional materials can be provided to experiment with. Alternatively, students can learn about wall labels in the museum and be challenged with writing their own label, or interpretation or artist statement.
- Adaptation: For younger students or students who need it, slow down and explore experimentation step by step with the class or group. Eliminate certain materials based on age or needs.

Results and Conclusions (10 mins)

Allow students to present their works of art, either as a group or individually. If there is time, allow them to reflect on the following:

- What did we learn about the artist by researching their process? What skills must they have used?
- Can you use anything from this research experiment in your personal art?

Cleanup (5 mins)

Leave time for students to tidy the materials at their tables. Students will place their works of art in a collective bag for their teacher to carry.

**Note:** If necessary or desired, *Bird Motif* can be replaced with Radcliffe Bailey's multilayered *En Route*, also on view in the museum. Similar principles apply, with the addition of collaging images.