STEAM: Science, Technology, Engineering, Art, and Math
Workshop Lesson Plan for Elementary School Students

What’s the Big Idea?
Artists are similar to scientists, Design Thinking

STEAM Tour and Workshop Purpose
During this workshop, the piazza installations at the High Museum of Art will serve as evidence for the similarities between artists and scientists. Students will explore how artists are creative problems solvers through engaging in the creative design process.

Essential Questions
Use the following as guiding questions as you lead students through the workshop:
• How is an artist similar to a designer, explorer, or scientist?
• How do artists use science, technology, engineering, and math?
• How are art and design important to our communities?
• What is a prototype?

Objectives
Students will …
• make connections between outdoor art installations and how the artists use creative problem solving to create art
• use creative-problem solving techniques to create a design
• consider how art and design affect people in their community
• create various prototypes to test solutions to a problem

Procedures
1. Introduction: Several years ago, the High Museum of Art began to work with artists to create interactive art to be displayed outside of the museum. The goal of these designs is to welcome people to the museum and invite visitors to connect with works of art. The designs are intended to be playful and encourage all people, including children, to play and enjoy the space.

2. Connections: Ask students if they can think of other types of structures or spaces where people are invited to play or interact.
3. **Design Challenge:** Introduce the design challenge for the day. Students will pretend that they have been hired by the High Museum of Art to design a work of art that people can interact with. The structure must have something that people can do, be fun, and be safe.

**Differentiate by Grade Level:**
- **K-2:** Design a sculpture that children can play on or with. It must be structurally safe as well visually interesting. It can be representational (meaning it looks like something) or abstract (meaning it uses line, shape, and color to create a design). Students are encouraged to select colors that contribute to the look and design. Students will also use human figurines to make sculptures that are to scale.
- **3-5:** Design a sculpture or outdoor work of art that museum visitors can interact with in some way. The design should be aesthetically pleasing and consider the use of line, shape, and color. Additionally, the sculpture must be accessible, meaning that all people can interact with it in some way. Students should consider design components and features that will make the sculpture safe to engage with.

4. **Make a Plan:** Before starting their prototypes, students will create a sketch of their design. During this time, students will consider the following:
   - **All students:**
     - Will my sculpture be on grass or on the cement?
     - Who is the intended audience?
     - How will people interact with the artwork?
   - **3rd and Up:**
     - How will I ensure that this sculpture is safe to interact with?
     - In what ways will my sculpture be accessible for all people?
     - How do I create a work of art that encourages an interest in art?

5. **Project Logistics:** Each student will have 20 minutes to construct a 3-dimensional version of their sketches and plans. Students will first select a sheet of paper that indicates whether the interactive sculpture will be on grass or cement. Students will then use the materials listed below to create a 3-dimensional prototype of their design. Explain that a prototype is a model that is used to brainstorm an idea and test out how it works.

- Corrugated paper
- Fun foam
- Straws
- Colorful tape
- Construction Paper
- Magic Nuudles
- Found Objects
- Pipe Cleaners

6. **Closing and Presentations:** Revisit the definition of a prototype. What challenges did the students encounter during this process? What would they change if they were to create a new design. Allow students to share their designs on a volunteer basis only.

7. **Cleanup:** Leave time for students to clean-up and return materials to designated containers.