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

What’s the Big Idea?
Creative Problem Solving

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

Essential Questions
Use the following guiding questions as you lead your students through the workshop:
- What can we learn from the artistic process to help students become creative problem solvers in the twenty-first century?
- How is an artist similar to a designer, explorer, or scientist?
- How do art and design affect people?
- In what ways are art and design important parts of our communities?

Objectives
Students will …
- make connections between how artists use creative problem solving to create their works of art
- use creative problem-solving techniques to solve a design challenge
- consider how art and design can have a positive impact on society
- think critically about solutions to social and environmental issues in their communities
- work collaboratively to create a solution for a design challenge

Procedures
1. Introduction: At the High Museum of Art and in various spaces around Atlanta, artists are thinking about how art and design can have a positive impact on people. Artists and designers are using art to transform public spaces.

   For example (select 2–3 of the following):

   Artist Jaime Hayon was challenged with the task of bringing life to the High Museum’s piazza. The goal was to make people feel welcome at the Museum, to engage the community, and to bring joy to visitors. Additionally, Hayon created art for the MARTA Arts Center station behind the Museum.
   - Show students before and after pictures of the piazza and the MARTA station. Be sure to check for understanding: What is a piazza? What is MARTA?
   - Ask students to compare and contrast the before and after images. How are they different? How did art or design transform this space?
Colony Square, a space with restaurants and retail spaces, recently installed a large-scale caterpillar bench inspired by the High Museum of Art’s exhibition I See a Story: The Art of Eric Carle.

- Show students a picture of the bench
- Why do you think the designer chose to integrate Eric Carle’s art into the design?
- How does the bench change the space? In what ways does it change how people interact with the space?

Artist Tony Cragg created World Events for the 1996 Summer Olympics in Atlanta. This sculpture is currently installed on the Woodruff Arts Center campus. The sculpture is made up of hundreds of artists mannequins to form a figure holding a globe.

- Why do you think the artist chose to depict a person contemplating a globe?
- How might this image connect to the Olympics?
- Why is public art important?

Each of these artists used creativity and critical-thinking skills to transform public spaces.

- Questions for reflection: How are these artists creative problem solvers? How is their work an example of how art and design affect people and connect with society?

2. Introduction of the Design Challenges: Explain to students that they will be creative problem solvers. They will be given a challenge and must work together to come up with a solution to solve a real-world problem. Students will consider how design and public art can affect society.

3. Project Logistics: Each table of 4 to 5 students represents one group. The group will pick a challenge out of a jar that the instructor passes around. Students have 18 minutes (or about one quarter of the total amount of time of the workshop) to solve their challenge.

4. Working as a Team: Students decide who will read the directions and who will collect supplies. If desired, students can be given roles such as Supplies Manager, etc. As a group, the students will decide on their supplies and gather them from the supplies table. Go over the rules listed on each Design Challenge Card. Answer any questions or concerns.

5. Closing and Presentations: After the 18 minutes, one person from each group will present the design prototype. Students should be prompted to share how their solution integrates design and functionality. How might their design have a positive impact on their community? How is this different from if they had created a solution that didn’t integrate design and art?

6. Cleanup: Leave time for students to clean up their work areas.
Vocabulary
Prototype
Installation
Site-specific
Commission
Design
Structure
Community

Materials for the Instructor
Timer
Graph paper (1 sheet per table)
1 container with 6 Design Challenge Cards
Design Challenge #1

THE CHALLENGE
“Diversity” refers to how we are all different from one another. Some differences include gender, ethnicity, culture, religion or spirituality, age, and ability. Diversity is beneficial because of the value that comes from combining different backgrounds, skills, attitudes, and experiences.

You are a team of street artists. The Atlanta Falcons have commissioned you to create a mural that celebrates diversity and community. You will paint the mural on a wall next to the new Falcons football stadium. The mural must be a minimum of 30 x 20 feet and can contain up to four colors. The installation must be interactive in some way.

Your design must be site specific. Site-specific art is created to exist in a certain place. The artist takes the particular location into account while planning and creating the artwork.

Your Site: The Mercedes-Benz Stadium (new Atlanta Falcons football stadium)

THE RULES
- Your group has 18 minutes to complete your design. You will then share your prototype with the rest of the group.
- You must work together as a team to produce one design.
- You may use the Idea Brainstorming Worksheet to sketch out your ideas.
- You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is your design functional? Is it aesthetically pleasing? How might your design have a positive impact on the community? How is this different from if you had created a solution that didn’t integrate design and art?
Design Challenge #2

THE CHALLENGE
The state of Georgia is prone to droughts during its hot summers. People visiting parks and cultural institutions often suffer from heat exhaustion and dehydration. The Piedmont Park Conservancy has commissioned you to design a work of art that also provides a space for visitors to cool down during the summer. Your art must be at least 10 x 10 feet and incorporate a water feature that uses as little water as possible. Due to budget restrictions, you will not have access to electricity.

Your design must be site specific. Site-specific art is created to exist in a certain place. The artist takes the particular location into account while planning and creating the artwork.

Your Site: Piedmont Park

THE RULES
- Your group has 18 minutes to complete your design, and then you will share your prototype with the rest of the group.
- You must work together as a team to produce one design.
- You may use the Idea Brainstorming Worksheet to sketch out your ideas.
- You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is the design aesthetically pleasing? How might it have a positive impact on the community? How is this different from if you had created a solution that didn't integrate design and art? In what way is your design site specific?
Design Challenge #3

THE CHALLENGE
The state of Georgia has a 100-mile coastline. Garbage, especially plastic, floats easily and takes a long time to decompose. Trash from throughout the state travels down streams and rivers and ends up in the ocean. Thousands of pounds of trash are collected from Georgia shorelines each year.

You have been hired by the Coca-Cola Company to create a sculpture out of trash found on Georgia shores. The goal of the sculpture is to educate people about littering and to encourage them to recycle Coca-Cola cans and bottles. The sculpture will be placed outside of The World of Coca-Cola museum. It must be a minimum of 20 feet tall and communicate a message about the negative effects of littering.

Your design must be site specific. Site-specific art is created to exist in a certain place, so the artist takes the location into account while planning and creating the artwork.

Your Site: The World of Coca-Cola Museum

THE RULES
- Your group has 18 minutes to complete a design, and then you will share your prototype with the rest of the group.
- You must work together as a team to produce one design.
- You may use the Idea Brainstorming Worksheet to sketch out your ideas.
- You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is it aesthetically pleasing? How might your design have a positive impact on the community? How is this different from if you had created a solution that didn’t integrate design and art? In what way is your design site specific?
Design Challenge #4

THE CHALLENGE
Howard Finster was an American artist from Summerville, Georgia. He is known for being a visionary artist, poet, and musician. Finster created of 40,000 works of art and an outdoor museum called Paradise Garden. This year, the High Museum of Art is celebrating what would have been Finster’s one-hundredth birthday.

You have been commissioned by the High Museum of Art to create a work of art that memorializes and respectfully pays tribute to the art and accomplishments of Howard Finster. You must create a sculpture that is taller than the museum and can be viewed from all sides. Because Finster included text in many of his works of art, you must include writing in your design.

Your design must be site specific. Site-specific art is created to exist in a certain place, so the artist takes the location into account while planning and creating the artwork.

Your Site: High Museum of Art Front Lawn

THE RULES
- Your group has 18 minutes to complete your design, and then you will share your prototype with the rest of the group.
- You must work together as a team to produce one design.
- You may use the Idea Brainstorming Worksheet to sketch out your ideas.
- You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is it aesthetically pleasing? How might your design have a positive impact on the community? How is this different from if you had created a solution that didn’t integrate design and art? In what way is your design site specific?
Design Challenge #5

THE CHALLENGE
Atlanta is one of the fastest growing cities in the country. The rapid increase in population has caused concern surrounding transportation and air pollution in the city. Air pollution has been proven to cause health complications and has a negative effect on the environment.

You are a team of artists hired by Hartsfield-Jackson Atlanta International Airport to design public art for the airport’s bus station. The goal of your art installation is to encourage people to ride city buses to and from the airport instead of driving. Your art installation must be a minimum of ten feet tall and should provide shelter from rain, snow, and sunlight.

Your design must be site specific. Site-specific art is created to exist in a certain place. The artist takes the particular location into account while planning and creating the artwork.

Your Site: Hartsfield Jackson Atlanta International Airport Bus Stop

THE RULES
- Your group has 18 minutes to complete your design, and then you will share your prototype with the rest of the group.
- You must work together as a team to produce one design.
- You may use the Idea Brainstorming Worksheet to sketch out your ideas.
- You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is it aesthetically pleasing? How might your design have a positive impact on the community? How is this different from if you had created a solution that didn’t integrate design and art? In what way is your design site specific?
Design Challenge #6

THE CHALLENGE
There was an oil spill in a body of water near the High Museum of Art. The Environmental Protection Agency has cleaned it up, but it is still unsafe for birds to enter the water. The EPA and the Museum have hired your team to create an artwork that will clean the water and keep ducks safe. The work of art must be three-dimensional and should not block the view of the city’s skyline.

Your design must be site specific. Site-specific art is created to exist in a certain place, so the artist takes the location into account while planning and creating the artwork.

Your Site: Piedmont Park, Lake Clara Meer

THE RULES
• Your group has 18 minutes to complete your design, and then you will share your prototype with the rest of the group.
• You must work together as a team to produce one design.
• You may use the Idea Brainstorming Worksheet to sketch out your ideas.
• You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is it aesthetically pleasing? How might your design have a positive impact on the community? How is this different from if you had created a solution that didn’t integrate design and art? In what way is your design site specific?
Design Challenge #7

THE CHALLENGE
This year marks the twentieth anniversary of the 1996 Olympic Games in Atlanta. Centennial Olympic Park was created for visitors and residents to enjoy during the Olympics.

You are a team of artists commissioned to create a public sculpture to celebrate the twentieth anniversary of the Atlanta Olympics. Because the park already has several designs that incorporate the Olympic rings, your design cannot include the rings. You must come up with another way to visually commemorate the Olympics. Your art installation must be made entirely out of metal and should provide additional seating for park visitors.

Your design must be site specific. Site-specific art is created to exist in a certain place, so the artist takes the location into account while planning and creating the artwork.

Your Site: Centennial Olympic Park

THE RULES
- Your group has 18 minutes to complete your design, and then you will share your prototype with the rest of the group.
- You must work together as a team to produce one design.
- You may use the Idea Brainstorming Worksheet to sketch out your ideas.
- You may use materials on your table to create a prototype or rendering of your design.

FOR REFLECTION
Did you work collaboratively? Is it aesthetically pleasing? How might your design have a positive impact on the community? How is this different from if you had created a solution that didn’t integrate design and art? In what way is your design site specific?
# IDEA BRAINSTORMING WORKSHEET

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